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NOVEL INDUSTRIES, FORESTS, & RURAL INSTRUCTION.

SECOND PROGRESS REPORT

OF THE

ROYAL COMMISSION

ON

FOREIGN INDUSTRIES AND FORESTS,

INCLUDING A

SUMMARY OF THE ANSWERS TO A CIRCULAR LETTER SENT OUT BY THE
COMMISSION DURING THE MONTH OF SEPTEMBER 1871.

PRESENTED TO BOTH HOUSES OF PARLIAMENT BY HIS EXCELLENCY'S COMMAND.

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SECOND PROGRESS REPORT.

*To His Excellency the Right Honorable JOHN HENRY THOMAS VISCOUNT
CANTERBURY, K.C.B., Governor and Commander-in-Chief in and
over the Colony of Victoria, &c., &c., &c.*

MAY IT PLEASE YOUR EXCELLENCY—

1. WE, the undersigned Commissioners—appointed by letters patent of the 18th July 1871, to inquire how far it may be practicable to introduce into this country branches of industry known to be common and profitable among the farming population of Continental Europe; to specify which of such industries are most suitable to our soil, climate, and circumstances; to report on the best means for their introduction into Victoria, and how far the labor of persons at the disposal of the State may be advantageously used for that purpose; and to further consider and report on the best means of promoting the culture, extension, and preservation of State forests in Victoria, and the introduction of such foreign trees as may be suitable for the climate and useful for industrial purposes—have now the honor to submit this our Second Progress Report.

2. In our First Report we touched briefly on some of the rural industries of Europe believed to be suitable for this country, more especially the production of olive oil, silk, dried fruits, flax, hemp and other fibres, beet-root sugar, as well as others of less importance from a commercial point of view, and much additional information on such subjects has been since obtained. The advantages likely to accrue from the proper employment of children, and other persons at the disposal of the State, in the practical introduction of such industries, has also been inquired into, with results to be more fully detailed hereafter. Nor has the present state of the forests in Victoria been overlooked. Some time has been devoted to ascertaining the wants of different parts of the country in regard to timber, more particularly those including the principal goldfields, and the supply within a convenient distance is failing so rapidly, that the question as to how this can be maintained is becoming daily more momentous. The formation of forest nurseries and test plantations was alluded to in our former Report, and further suggestions will be made on this subject. This serious diminution of the supply of timber is directing public attention more and more to the necessity for stringent regulations in the management of the State forests, and for better means of enforcing these than exist at present. Many valuable suggestions for the furtherance of these objects have been gladly received and fully discussed, and the Commissioners, having considered the subject in many of its bearings, hope to receive still further information to assist them in preparing a scheme of general management adapted to the wants of the country and at the same time acceptable to the bulk of the people.

3. The number of meetings held by the Commission has amounted to forty-nine, in addition to those held by the several committees appointed from time to time for special purposes, and the business has been of a varied character. Several witnesses have attended to give evidence on the facilities for introducing new industries, and on the suitability of the soil and climate of this country for the olive, the mulberry, and other industrial plants, on the condition and improvement of the forests, and on the best mode of providing against the now reckless waste of timber. It will be desirable to examine many more witnesses before the conclusion of our labors, and the main evidence of all will be attached to our final Report.

4. In our First Report mention was made of the olive trees on the Model Farm adjoining the Royal Park. They have borne fruit freely, and are declared to be in perfect health, although exposed to the full force of the south and south-west winds off the bay. This is not a favorable aspect, even if sheltered from the wind; and if, with such an aspect, and absolutely no shelter

from the violent winds which blow here at times, the olive can thrive and bear fruit within so few years after being planted, there is an absolute certainty of this tree being highly productive in more favorable situations. This, indeed, has been proved at several different places within a few miles round Melbourne, and with trees older than those at the Royal Park. It may be stated, also, that the fruit ripened perfectly, and at the usual season, so that the seeds were fully developed and fertile.

Olives planted in
the Royal Park
and other places.

5. While on the subject of olives it is right to mention that, in order to give an impetus to the culture of this tree, cuttings of additional varieties were kindly forwarded by the Hon. Sam. Davenport from South Australia, to be planted at the Botanic Garden, and rendered available for distribution; and to the Rev. Dr. Bleasdale was entrusted the experimental task of planting, on the Acclimatisation Society's land, in the Royal Park, as many truncheons and cuttings as could be got into the ground with a fair chance of growing at the rather late period of the year at which the work was commenced. The number then planted was 1600—many of these large truncheons prepared according to the Portuguese method; and the majority of both cuttings and truncheons have already made a strong growth, although only limited attention was bestowed on them since they were first put in. They were thus left almost to nature, to prove how easily the olive tree can be propagated to any desired extent. From suggestions made to the Commission, it was considered advisable to apply at once to the Chief Secretary for permission—readily granted—to take the steps alluded to, and the result has been to secure the growth of many hundred young trees for future use. The varieties already here, obtained in the first instance from South Australia and New South Wales, are apparently good, and Baron von Mueller has an additional selection of the best varieties from various parts of Southern Europe, so that there may be scope for choice in planting different named sorts in the situations and soil for which they answer best.

Pamphlet on the
olive and chest-
nut by the Rev.
Dr. Bleasdale.

6. A report on the Portuguese mode adopted in planting the olive cuttings and truncheons in the Royal Park, together with a short treatise on the Spanish chestnut, has been published in pamphlet form by the Rev. Dr. Bleasdale. These were first given to the public in the columns of a weekly newspaper of large circulation, and were, no doubt, widely read. The pamphlet also contains directions for the drying of figs, with a description of the kinds principally grown for that purpose in the south of Europe.

The sultana
grape-vine.

7. Through the kindness of Mr. McEwan, of South Australia, 200 cuttings of the sultana grape vine have been received for distribution, with such cuttings as could be spared from the Botanic Garden, and these have been given to vineyard owners in suitable parts of the colony. The gentleman named, as well as Mr. Thos. Hardy and other residents in South Australia who are becoming skilled in fruit-drying, have promised samples of the fruits prepared by them, together with instructions in the several processes which their experience leads them to adopt.

Hop-growing.

8. Although hop-growing may be neither a novel nor a foreign industry, it has been considered by us as one of great importance, and has commanded our attention. The first planters of hops in this colony were not acquainted with the practices elsewhere, and printed instructions were not easily to be had, if we except the few articles on the subject which have appeared in the weekly papers from time to time. Thus the pioneers in this branch of rural industry have had to acquire experimentally, as it were, their knowledge; but they have proved parts of the colony to be eminently adapted for the growth of hops, as may be learned from the summary of answers to the queries farther on. Labor was scarce and dear at picking time, and the oasting part of the work was not understood, so that the pecuniary returns were at first disappointing; but experience has convinced the growers that further knowledge is alone required to render their hop gardens highly remunerative. To supply this, in part, Mr. Howitt obtained, from Kent, plans of the most approved kilns or oasts, which he has kindly placed at the disposal of the Commission. And it may be encouraging to say, that in Gippsland very simple kilns have this season been erected, of rough materials and at moderate cost, with which complete success has been achieved. But this result was not obtained by the means before alluded to, but by the skill of an experienced hop-curer, who was engaged at other work until he learned, from the published reports of our proceedings, that practical knowledge of the kind was needed by the growers of hops in a part of the country with which he was not previously acquainted.

Flax and other
fibres.

9. The subject of flax-growing requires much more attention than it has yet received from the Commission. Among the samples of common flax, one

forwarded from Portland, and grown by Mr. E. Henty's gardener, is of fair quality. Well-prepared samples of "New Zealand phormium," as it is for the future to be called in commercial circles, have been also forwarded to the Commission. These were obtained from plants grown in Victoria, and, as the cultivation is easy and, moreover, the plant perennial, it was thought desirable to learn if any of the former difficulties in the way of preparing the fibre for market had been removed by the late inquiries in New Zealand. The Central Government was therefore communicated with, and, in answer to direct questions on the more important points of practice with regard to chemical agents and machinery, forwarded copies of the reports from two Royal Commissions appointed specially to inquire into the cause of these difficulties and suggest means for their removal. The first Commission did little beyond promote inquiry; but the second Commission, with Dr. Hector as chairman, brought up a most exhaustive report, towards the end of last year, supplemented since by an appendix containing the results of experiments and analyses conducted by some of the first chemists in Great Britain. This mass of valuable information is being reduced to practice at the several flax mills in New Zealand; and although there had previously been great improvement in the mode of preparing the fibre for market, principally in consequence of better machinery being employed, the improvement is likely to be more rapid now; and it will be advisable to note the results, for the phormium can be grown well on land not readily available for other purposes. The subject of fibre plants generally is one of vast importance, and will require further attention.

10. A very useful illustrated table, published at the Government Printing Office, Sydney, translated from the Italian of Giuseppe Vallardi, and illustrating the development of the *Bombyx Mori*, was obtained by Dr. Thos. Black, President of the Acclimatisation Society, at the instance of Dr. Bennett. It depicts the silkworm at every stage of its growth, life size; and gives also clear directions for the feeding and management of the worms through every change. So trifling is the cost that a framed copy should be fixed on the walls of every schoolroom in the country, and the Commission have procured many copies for distribution. A knowledge of the silkworm and its habits would be thus insensibly imbibed by every child with a taste for pursuits of this kind. The desire for keeping a few worms would as surely follow, and this could be gratified by planting the mulberry near each schoolhouse; facilities for which have indeed been already afforded by the annual distribution of this useful tree from the Botanic Garden. The silkworm.

11. The Honorable the Chief Secretary was pleased, on the recommendation of the Commission, to procure some copies of "The Forest Trees Planting Encouragement Act" of New Zealand. This was passed in November last, and provides that, wherever the Act is declared to be in operation, two acres of rural land shall be granted for every acre planted successfully with forest trees. The conditions are, that the Crown grant for the additional land so allowed is not to issue until the trees on the planted land shall have been kept in a vigorous and growing state for two years. The land so planted must be securely fenced against both cattle and sheep, and devoted solely to plantation purposes. The requisite number of trees to the acre will be defined from time to time by regulations of the Governor in Council, and no claim will be allowed for less than 20 or more than 250 acres. Persons who have, however, less than 10 acres of trees planted can claim 20 acres of land by paying the difference in cash. Planting Act of New Zealand.

12. Many letters have been received directing the attention of the Commission to the needless waste and destruction of timber in almost every part of the colony, more particularly near the principal goldfields. These letters only seem to give force to the statements made and the opinions expressed further on in the body of the Report. That urgent action in reference to this subject is needed, becomes daily more evident. Waste of timber.

13. In submitting again merely a Progress Report, and reserving the consideration of many of the questions before us for a future and more full Report, we have been mainly actuated by a desire that our present recommendations may afford timely aid in any measures concerning industrial instruction, new branches of husbandry, and forest management, for the promotion of which the Government may see reason to provide administrative and pecuniary means during the new financial year. We have therefore deemed it of urgent importance to delay no further our representations in reference to the foregoing subjects, and also Necessity for early measures.

in regard to raising timber trees on the railway lines and on other Government grounds, inasmuch as the time has arrived when the needful selection of nursery space should be made in all the various localities at which such reservation is required, in order that, during the cooler months of the year, the necessary sowing and planting may be effected; otherwise no proper advantage could be taken of the coming season, or it might be altogether lost for these purposes.

Rural industries
of Europe.

14. Referring more particularly to the objects with which the Commission was appointed, much information on these has been collected. In connection with the first, the introduction of such of the rural industries of Europe as may be suited to our soil, climate, or peculiar circumstances otherwise, many products have been named. The plants to yield these have been fully specified in the appended summary of evidence and form a very long list—but not too long, considering the wide diversity of soil and climate within the boundaries of Victoria. Of immediate importance is the white beet. In 1870 we paid away for sugar alone £958,597, and, if the European system of sugar-making can be introduced here with profit, not only may this amount be saved, but the general mode of farming must at the same time be vastly improved. The gain to those countries which now obtain their supplies of sugar from this root is greater from the indirect advantages than from the keeping within their own confines of the sums expended on an article so largely consumed. The growing of beet successfully means good general farming—more corn and meat off the same extent of ground, with the sugar as an extra profit on the first outlay in preparing the ground by tilling it deeply. If for no other object than the improvement of our general system of husbandry, the experiment of growing the beet for sugar-making ought to be freely encouraged. We are glad to find that commercial enterprise has responded to the action of Parliament in offering a premium for the first large quantity of sugar made from beet. As employment for men, and as affording a variety of crops and resources for farmers and country residents, over and above the ordinary products now too much run upon here, vegetable oils, fibres, tobacco, and hops are named, and ample evidence is afforded of the facilities with which the plants in connection with them can be grown; while to occupy the time of the children and youths profitably there are silks, dried and preserved fruits, medicinal herbs, and dye stuffs, flowers for the perfumers, and perhaps tea in certain parts of the country. Not only would such things amount to a considerable money value in the whole, but the variety of interesting and hopeful pursuits thus afforded would have the best effect in creating habits of industry in children now growing up without profitable occupation all over the colony. However, there can be little hope for a change in this respect until we have established among us that variety of minor as well as more important industries which afford such constant occupation to the country children of France, Germany, Switzerland, or Belgium.

Information on
the minor
industries.

15. This want is fully admitted, but it will be no easy task to cause a scattered country population to become acquainted with what they ought for their own benefit to know. Nearly all the rural industries of the warmer parts of Europe are suited to different portions of Victoria, if the people could be brought to understand them. When asked for opinions on this branch of the subject, our correspondents could offer but few suggestions, but these will suffice if acted on with prudence and foresight. It is recommended that premiums should be offered for the raw products and their utilization; that information in connection with them should be freely distributed amongst the residents in the country, of all classes; and, lastly, that the required seeds and plants should be rendered readily available. But the information must clearly be supplied first; then a demand for plants will arise; when the offer of premiums for the products may be expected to promote the cultivation of these plants on an extended scale. Amongst the suggestions of our correspondents in regard to country schools are several bearing on this view of the case. It is pointed out that there might be a collection of specimens, either natural or artificial, illustrated cards, pamphlets with plates of machinery, and other appliances or models, to be used by the teachers in affording instruction on such industries as are deemed or proved the most suitable for this country. But to perform this portion of their duty in an efficient manner the teachers in country schools should be required to have a certain amount of actual knowledge of such subjects, this special preparation of teachers for country schools having been long a part of the National School system of Ireland. And, to give practical force to the theoretic teaching, each school might have a piece of ground with growing specimens of the more important plants. Nothing can be more desirable. This idea has been

enlarged upon, and a very complete system of imparting information has been indicated piecemeal by the several writers, to finish with a University training for young men who are to become scientific agriculturists. But the first consideration ought plainly to be how best to bring home to the people at large a practical acquaintance with such of the minor industries as can be commenced without the outlay of much money, and are calculated to increase their comfort, or in time to add materially to their income. While the children are becoming gradually acquainted with these at the schools, the parents should be induced to read about them in the tracts and pamphlets which we have, from the commencement of our inquiry, declared to be so much needed. The parents and children will thus be enabled to aid each other in the pursuit of knowledge, and the family discussions will end in experiment, if the means, in the form of seeds and plants, be rendered easily accessible. The last stage of the process will be to create emulation, by the local societies offering prizes for such products as are adapted to the peculiar circumstances of their several districts.

16. For the introduction of the more important new crops, and improvement in the treatment of such as are not generally understood yet, information of an advanced kind must be imparted by means of specially prepared treatises or judiciously conceived lectures. The proposal of some of our agricultural correspondents, that there should be lecturers travelling about among them, pointing out the peculiarities of soil, or suggesting changes of crop or system, ought not to be overlooked. The farmers as a class want leading, and even one qualified person might effect a vast deal of good, travelling from district to district, mixing freely among them, now lecturing to a few collected together and encouraging discussion, or walking over their grounds with individual farmers, and taking notes for future publication. A description of any district written in a conciliatory spirit would be read by every resident within it, as well as by the farmers elsewhere, and might be made the means of conveying many useful suggestions. Besides, a well-qualified lecturer, acquainted, as he ought to be, with at least the first principles of geology, would be able to point to spots where mineral manures would probably be found; and these are becoming urgently required under our present exhaustive mode of farming. Lastly, the bringing of the farmers together—and they avow themselves ready to attend lectures freely—would materially aid in the formation of Farmers' Clubs; and we need scarcely repeat the statement, that, if the farmers wish to make any real progress, they must meet more frequently, and discuss the merits of new crops, new manures, new systems, and new industries, and impart to their neighbors the results of any experiments they may be induced to try. In making these suggestions, we do not overlook the fact that much valuable information is diffused through the country by means of newspapers devoting a portion of their space to agricultural and rural subjects, but these can never entirely supply the special information needed.

The more important crops and industries.

17. Example farms and gardens have been suggested as efficient means for practical teaching. The word "example" is used in preference to "model," because the object here is not to lay down any particular plan, either in farming or gardening; for imitation, but to prove on a sufficiently large scale whether each new plant or tree is likely to lead to a profit or loss on its culture. Carefully prepared annual returns would show the cost of sowing an acre of flax or hemp, or of planting an acre of olives or mulberries, with the yield year by year; and persons interested in such things could learn the mode of treatment by observation, and see them at every stage of growth. Then from these farms and gardens might be obtained large quantities of such seeds and cuttings as it would be advisable to distribute widely. Great benefit has been derived in America from raising and testing new plants in this way at first, and then giving to the practical farmers the seeds of all such as appear to be adapted to the country. And we have the testimony of several residents in this colony that they will gladly aid in experiments of the sort, by carefully tending any new seeds or plants with which they may be supplied.

Example farms and gardens.

18. With regard to the second object of the Commission, the inquiry as to how the labor of persons at the disposal of the State may be most advantageously used in promoting the introduction of novel industries, the opinions expressed are very decided. It is shown that there is prison labor which may be employed in a much more varied way than at present; and many of the children at the Industrial Schools, young as they are, might be beneficially engaged for a portion of their time in the lighter work, such as tending young plants, weeding, or gathering

Labor at the disposal of the State.

and preparing the products to be raised on the suggested farms or gardens. The Industrial School at Sunbury exhibits nothing like an example, and is, in fact, we believe, a well-conducted Infant Poor House, instead of being an Industrial School. In this institution there are no boys fit to work at any rural employment, while in the *Nelson* training ship there are, and the great anomaly presents itself that while the demand for apprentices for sea purposes is not more than ten per cent., and the demand for land purposes is ninety per cent., the ninety per cent. are habitually trained for purposes for which they are not required, and are never taught anything connected with rural industries, in which direction their training is required. A few of these boys are now employed at the Botanic Gardens, and would thus have an opportunity of becoming skilled in a most useful occupation, but they are not allowed to remain long enough to become experienced in any branch of garden work. This surely does not deserve the name of industrial training. But, judiciously used, the labor at the disposal of the State might be turned to valuable account, in establishing among us those rural industries which ought to be encouraged both by precept and example.

The forests.

19. The urgency of the appeals for a more strict preservation of our native forests proves with how much alarm the residents in many districts now view the rapid decrease in their available supplies of timber. The quantity consumed as fuel by the steam-engines on the goldfields is becoming very large, and is every winter obtained with greater difficulty, and, of course, at increased expense. Thousands of miners are now depending for their bread on the working of these engines, and it has already happened that, during an unusually wet winter, several could not be supplied with fuel at a rate low enough to allow of work being continued. The stopping of the engine is of course followed by a reduced demand for labor, so that full employment for the miners, as well as the maintenance of the yield of gold, has become intimately involved with the forest question. Then the timber supports—technically, the props—which are required in deep sinking, have to be carted a long distance already in many of the most thickly populated districts, and are becoming so scarce in others that the supply must soon cease unless measures be taken to protect the young saplings. The Board of Land and Works has issued regulations with this object, and with a view of checking the reckless waste and destruction of timber, which has become a habit owing to the profusion with which we found it supplied by nature; but in many of the forests these regulations cannot at present be enforced. It has, therefore, been suggested that the State forests should be placed under the charge of local boards of management. However, although as a people we have been slow to avail ourselves of the warnings from other countries, the threatened failure of the supply is now causing the preservation of the forests to become a question of very general interest.

A sub-department of rural industries and agriculture.

20. Seeing then the great advantages to be derived from the establishment among us of the rural industries of Europe, the Commission desires earnestly to express their high approval of the proposed agricultural sub-department, under the supervision of the Minister of Lands. The knowledge to be imparted must emanate from a well matured and comprehensive system, containing both the scientific and practical elements. The wants and peculiar circumstances of this country must be studied, and information already at our disposal applied to these. And, with regard to providing the sort of knowledge specially bearing on these rural industries, much remains to be done. For their successful prosecution they require besides a greater amount of care and attention to the crops on which they depend than prevails here with our rough and injudicious mode of farming; therefore they must lead to, or, more correctly speaking, be the result of an improved general system of husbandry. To bring about this improvement, we would respectfully call your attention to the Agricultural Department of the United States of America, established in 1862. The reports of the Commissioner of Agriculture, published yearly, contain information obtained from all parts of the States, as well as from all parts of the world. The value of this system is best shown by the following resolution adopted by the House of Representatives; the Senate concurring:—"That there be printed of the annual report of the Commission of Agriculture for 1869, two hundred and twenty-five thousand extra copies, one hundred and eighty thousand of which shall be for the use of the House, twenty thousand for the use of the Senate, and twenty-five thousand for distribution by the Commissioner of Agriculture." The founding of agricultural schools and colleges is also proceeding rapidly there. In Europe these have been the first consideration. Here, probably, it will be found advantageous to follow more immediately the American example, and make it the first object of the proposed sub-

department to supply the people throughout the country on an extended scale with useful publications, and seeds and plants for experiment; other means must be added by degrees, and, as has happened in America, so we may hope to see this sub-department expand in a few years into a fully developed institution, cherished and supported by all classes and sections of the community.

21. As a remedy for the anomaly of training boys for the sea when most of them are required on land and for rural pursuits, we would recommend that buildings be erected at the Model Farm in the Royal Park for as many as can be employed there under proper supervision, or at some other more suitable place. The advantages of the farm are that the land is conveniently divided, and in good condition for the growth of crops of any sort. There is also a large garden containing fruit trees and vines of many kinds, as well as olives and mulberries, so that tillage and experiments might be commenced without the expense and delay unavoidable with a new establishment. On this farm the well-behaved boys from the *Nelson* might be profitably occupied, and so initiate a more consistent system of training—the vessel named to be used strictly as a reformatory school.

The Model Farm
in the Royal
Park.

22. Returning to the timber question, we consider this of such vital importance to the mining, industrial, and rural prosperity of the colony, that we strongly recommend the formation, at an early date, of a Central Forest Board. But the planting and care of trees is so intimately connected with the introduction of new industries, and should become so much a part of the ordinary farmer's employment, that agriculture, horticulture, and forest management might be advantageously brought into close relation under one head, and the business connected with them transacted through one Minister. The new industries will bring the two first named into very close communion, and, when State nurseries are established, forest trees will have to be grown together with the olive, mulberry, sunach, tea, or other plants of a horticultural character. And in connection with the subject of State nurseries we would recommend that the project of forming one near the Maccdon railway station, first broached some years since by the Assistant-Commissioner of Lands and Survey, with the object of raising useful timber trees for distribution to selectors, and for the planting of reserves denuded of indigenous timber, be now carried out, and a commencement thus made in this direction. The feeling of the rural portion of the colonists has been strongly expressed in favor of such nurseries, and they would assist materially in promoting the objects of this Commission.

Forest manage-
ment.

SAMUEL H. BINDON.	(L.S.)
GEORGE WARD COLE.	(L.S.)
R. C. HOPE.	(L.S.)
ROBERT RAMSAY.	(L.S.)
J. F. LEVIEN.	(L.S.)
T. M. B. PHILIPPS.	(L.S.)
WILLIAM WITT.	(L.S.)
FERD. VON MUELLER.	(L.S.)
THOS. BLACK.	(L.S.)
JOHN I. BLEASDALE, D.D.	(L.S.)
PAUL DE CASTELLA.	(L.S.)
CLEMENT HODGKINSON.	(L.S.)
R. BROUGH SMYTH.	(L.S.)

Mr. Hood had sailed for England before this Report was ready for signature.



SUMMARY OF THE ANSWERS TO QUERIES CIRCULATED BY THE COMMISSION DURING THE MONTH OF SEPTEMBER 1871.

(Prepared by the Secretary for the use of the Commission.)

IN sending out the circular asking for information and advice on these several subjects, the object was, of course, to have it placed in the hands of those persons best able, from their experience in this or other countries, to answer the queries therein. Therefore, copies for distribution were sent in the first instance to all the representative bodies throughout the country, namely, the shire, district, and borough councils, as well as to the principal agricultural societies—amounting to about 170 in all. Single copies were also sent to gentlemen known to be capable of furthering the objects of the Commission. The editors of many of the newspapers did good service besides by publishing the circular in full, and directing attention to it in their leading or other columns, so that the circulation of the queries may well be considered to have been complete throughout the colony. Over 800 copies were thus distributed, and a fair proportion of these were returned fully, and in some cases elaborately answered. The answers contain a mass of useful information, as well as the opinions of many gentlemen qualified, from their long residence and practical participation in the several pursuits of the colony, to judge truly of its wants and capabilities. Valuable aid has also been afforded by a few gentlemen now residents in Victoria, but natives of different European countries. One lady has also assisted in this inquiry by furnishing practical suggestions for the teaching and employment of girls at the public institutions.

Before proceeding to collate and summarise the information and opinions contained in the answers, I may be permitted to point out that the mere circulation of the queries has been of use. By reading them the attention of many persons has been directed to the possibility of introducing branches of industry not thought of before, and inquiry will lead to experiments which would not otherwise have been undertaken. And with the spirit of inquiry once aroused, it may be easily kept alive by the dissemination of printed instructions, and the distribution of a few seeds or plants of a novel character, with detailed accounts of experiments conducted at State establishments.

The number of queries issued was fifteen, and for the sake of conspicuousity it will be needful to take them in rotation.

Thus—

NOVEL INDUSTRIES.

Query 1. *What novel or special rural industry might, in your opinion, be established or largely extended in your locality, with a prospect of proving remunerative under the present circumstances of the country?*

The answers to this and the following question did not, in many instances, distinguish the industry from the plants to supply material for it. I find, however, certain industries, or branches of industry, strongly recommended. These are principally sugar-making, the preparation of fibre and vegetable oils, the manufacture of starch and arrowroot, of potash from native shrubs and the branches and leaves of certain trees, of acetic acid from waste timber, the making of baskets and of straw plait by children, the production of silk of different sorts, the drying and preserving of fruits, the making of brandy and cider, the growth and preparation of medicinal herbs and of plants for dye-stuffs, the growth and manufacture of tobacco, flower-farming, or the collection of cultivated and native flowers for perfumery, the growth of tea, the more extended cultivation of hops, and the collection of the various descriptions of gum and resins produced by native trees.

SUGAR-MAKING.

As this is the first-named of the several new industries, so it may ultimately prove one of the most important. The value of the sugar now imported annually is not far short of a million of money, and there is, according to the answers, a wide extent of land in the colony suitable for growing the sorts of beet from which sugar is so profitably manufactured in Europe. In the answers from the districts around Geelong and through the rich lands to the westward, by Colac and Camperdown, as far as Belfast and Portland; from Ballarat and the rich country around it, extending along the ranges eastward even to Mansfield; and from Gippsland, and wherever there is a tract of good land under a comparatively cool climate, the sugar-beet is insisted on as a crop easily to be reared as soon as a market for it offers. The district around Warrnambool has long been famous for its root crops, and we are told that there are, within a few miles of that town, 30,000 acres especially adapted for beet-growing. Not only is the soil adapted for it, but there is so much moisture in the atmosphere along the southern coast, that crops of this sort are almost independent of

rain. Then, regarding the country near Mansfield, a resident of much experience says—"The soil and climate of this district are admirably adapted for the growth of sugar-beet and sorghum. The soil has one of the great essentials for the growth of sugar-making plants: it is full of lime, and totally free from salt (chloride of soda), which, I am told, is most important." The presence of such salts in portions of the colony it is said will prove a difficulty in the way of sugar-making, but the two districts specially alluded to may be taken as samples of many others in which calcareous and volcanic soils predominate. Grown on these, the juice of the beet will always be free from the saline matters which give the sugar makers so much trouble. A large part of Gippsland is also very suitable for the growth of this root, and consequently for the making of sugar. In the warmer portions of the colony, where beet would be an uncertain crop, some of the many varieties of sorghum or imphee, of the Chinese or African sugar-cane, may be grown with facility. It is said also that sugar is now made with advantage, both in Europe and America, from melons and pumpkins. If such is the case, these can, of course, be readily grown in any quantity where the climate is too warm for beet.

But, while pointing out the facilities we enjoy for raising sugar-yielding plants, the correspondents of the Commission have not overlooked the real difficulty—that of finding a market or sale for the raw material. The proprietors of manufactories will be the only purchasers, and how can capitalists be induced to erect these in anticipation of a supply of the raw material on which to operate? The farmers may not have capital to spare to allow of their erecting machinery on the co-operative principle, and men of business will scarcely be induced to speculate in this direction, unless the factory to be erected near Geelong should be a pecuniary success.

FIBRES.

The demand having been so great of late years, as a matter of course not an important plant known to be capable of producing fibre valuable to the manufacturer has been overlooked. But, as in sugar-making, so the difficulty is to show how the preparation for market can be encouraged. It is suggested that there are many persons in the colony skilled in the growth of flax, for instance; but it is also said that they want some special inducements here to return to an occupation which they followed with advantage in their native country. In the opinion of a few of the respondents, the erection of scutching-mills would be sufficient to lead to the growth and preparation of flax on an extended scale in some parts of the country, while the majority believe that nothing short of a high bonus will suffice. As was done in Queensland with cotton, a certain sum might be offered for each bale of marketable fibre up to a given number, or for the first ton, and the industry thus stimulated into existence would be carried on if found to be profitable. Beyond this the suggestions do not go; but it would seem from the tenor of the evidence that, if the preparation of vegetable fibres is to become an important industry here, there must be a division of labor—in the growing of the plants, and the preparation of these for market.

VEGETABLE OILS.

The most important of these is probably olive oil, and that in time will be produced most advantageously here. The Commission is already in possession of excellent samples produced near Melbourne and Geelong, and the growers of the tree at Bontherambo, near Wangaratta, say—"We have about twelve acres of olives, which have grown and bear remarkably well. We have made forty or fifty gallons of good marketable oil, but have hitherto found the cost of gathering the fruit too expensive to allow of the manufacture being profitable." At Adelaide the gathering has been effected cheaply by children. Accounts of the olive growing and bearing well have been received from almost all parts of the colony; and where the tree thrives means will be found of preparing the oil with profit. For example, in Italy the fruit of the olive is mostly allowed to become so ripe that it can be shaken off into cloths placed beneath the trees, when the cost of gathering becomes a mere trifle. The item of expense, so formidable to the gentleman at Wangaratta, can thus be almost entirely obviated, and the oil yet obtained of good quality. In France, Spain, and Portugal, the system is generally to pick or beat off the fruit before it is quite ripe; but the average of Italian oil is quite as good as that produced in the countries named, and why should not the Italian system answer here, if we get the right varieties of olive for it? The almond also is mentioned as a tree from which oil may be expected in large quantities. It grows with the greatest facility, and comes into bearing more quickly than the olive. Whatever doubt there may be about the growth of flax for fibre being profitable, there seems to be none about the seed paying; and we may quickly produce all the linseed oil we require, if only mills be erected for pressing this out. Two correspondents of the Commission have gained experience in America in the preparation of oil from the castor-oil bean and the seeds of the sunflower, and say that these oils can be produced with profit here. The item of labor would be no higher, and in other respects our advantages are at least equal. Then the poppy and different plants bearing small seeds have been mentioned as likely to be desirable for oil-making purposes; but the chief difficulty plainly is to introduce first the manufacture of oils better known and more largely used.

STARCH AND ARROWROOT.

The want of a starch factory is said to be seriously felt in more than one district, to turn to account much agricultural produce now wasted; but this is no novel industry, for starch of every kind has been made here at different times. Arrowroot has been suggested as a product likely to be profitable.

POTASH AND ACETIC ACID.

A considerable quantity of potash is now used here, and it is a question if that could not be added to the list of colonial products with benefit. The scrub in the Cape Otway forests, as well as in other parts of the colony, has been suggested as a source whence all we require might be obtained for many years to come, and if the potash could be saved with profit, the destruction of the scrub would be a twofold gain. Acetic acid is another product mentioned, and in the large forests there is much timber of an inferior kind, which might be well devoted to the purpose, if the consumption would be sufficient to allow of erecting the necessary works.

BASKET-MAKING.

The making of baskets has been mentioned by many residents in the colony as a petty industry which ought to be greatly extended. The finer and medium sorts are becoming at length plentiful enough in the towns, but strong, coarsely made baskets of different sizes would be very much more used on farms and in gardens and orchards if they could be obtained at low prices. This is a kind of work suitable for boys at public institutions; and osiers can be grown in any quantity along the river banks, and on islands and spots of ground fit for nothing else.

STRAW PLAIT.

The preparation of straw for plait, and the making up of hats and bonnets, has been recommended by a lady at Fitzroy as a branch of industry worthy of encouragement. This lady has been practically engaged in it for some years past, and has succeeded in the face of serious difficulties, one of the greatest of which is the obtaining of raw material in a suitable form. Rye is grown here largely, but the straw requires to be saved in a special manner for this purpose. We can also grow the several grasses and the kinds of willow used for hat-making in Italy and elsewhere; and as 30,000 persons, of all ages, are said to find employment at this industry in Great Britain alone, and as we certainly import very largely for our own use, straw-plait-making would appear to be deserving of more notice than it has yet received.

SILKS.

This stands next on the list, and there appears to be no reason why the production of silk should not be profitable here. An Italian gentleman, of Daylesford, says—"The growth of the mulberry tree for silk will, I believe, be one of the most productive industries in the colony, and in a shorter time than what the public think, as I consider this climate just fit for it." And in this opinion many of this gentleman's countrymen agree. All varieties of the mulberry are grown and increased with the greatest facility, and there are in the colony localities to be found suitable, in regard to climate, to every variety of the silkworm. The only cogent objection is the cost of labor; but on the other hand it is pointed out that the work of tending the worms is almost entirely done by women and children, who without this occupation would be earning little or nothing. The partial failures in the limited experiments made as yet have arisen principally from want of the best varieties of worm to commence with, and even these were in the hands of learners. But better stocks are now obtainable, and skill in the management will be forthcoming when there is really a demand for it. Besides the true silk, the coarser sorts may also be raised in any desirable quantity, for the alantus and ricinus may be grown and increased with even greater facility than the mulberry, and the worms which feed upon these plants like a warm dry climate:—unless, indeed, there may be a difficulty in protecting from our insect-eating birds the worms which live on the trees.

DRYING AND PRESERVING FRUIT.

From all the warmer parts of the colony suggestions have been received as to the drying and preserving of fruits—the drying more especially, as this does not involve any expenditure for sugar. Bottling has also been recommended as a convenient way of saving the surplus of some sorts of fruit; but that can scarcely be called a novel branch of industry. Grapes are, of course, the fruit to which attention has been principally directed, and the Commission has been supplied with samples of very fair raisins, to show what may be done with little skill, and without very much trouble. The preparation of raisins for market has scarcely been attempted here yet; but not a few of our vignerons and settlers are now getting into the habit of drying a few grapes each year for domestic use, especially north of the Dividing Range, where the dry and warm climate renders the process an easy one. The fruit of the Corinth grape has also been dried, showing that "currants" may be prepared even more easily than raisins. Prunes, apricots, peaches, apples, and figs are also mentioned in the category of dried fruits; but experiments with these have been limited, seeing that fruits of the sort have been superabundant in but few places as yet.

BRANDY.

Strong remonstrances have been received against the present illiberal distillation laws, which are said to cause a great waste of inferior grapes, inferior wine, and refuse material on the vineyards, capable of being converted into brandy. These laws thus militate seriously against the success of an industry not so prosperous or promising as it ought to be.

CIDER AND PERRY.

The making of cider and perry is recommended, but orchards will scarcely be planted with this object alone. A commencement has, however, been made in the desired direction, for apples were so abundant last season, that a large surplus had to be disposed of without going to market, and much of this was converted into cider with advantage. Pears promise to be more abundant in future than apples, and will have to be treated the same way. Both cider and perry ought to meet with a ready market here, as they are deemed by many of your correspondents to be better than wine for sustaining the strength in hot weather.

MEDICINAL PLANTS.

For the purposes of the chemist and druggist, doubtless several plants may eventually be grown here on a limited scale; but the opium-poppy is the only one in relation to which any success has been recorded as yet. In all the cooler parts of the colony this grows with great certainty, and yields an abundance of good opium, which has been gathered with profit where the labour of children has been available. This branch of industry has, therefore, been recommended from different quarters as one capable of great extension, the product being so valuable in proportion to its bulk as to admit of distant carriage or exportation. The cinchona has been proved to grow freely in places sheltered from hot winds and frosts; but experiments with it have been limited as yet. Other products, and the plants yielding them, have been suggested as worthy of trial, but excepting the one first mentioned, little of a positive character can be stated.

DYE STUFFS.

The foregoing remarks will very nearly apply to this section also, for, with the exception of madder, few plants yielding dye stuffs have been tried. This has been grown here occasionally, and without difficulty, but never on a scale sufficiently large to prove whether it will be a commercially profitable product or not. Indigo is recommended for the warmer parts of the colony, and there can be little doubt that it would grow well in such.

TOBACCO.

The growth and preparation of tobacco for market is pointed out by many of your correspondents as a branch of industry capable of great and profitable extension. When this was commenced a few years since, expectations were too highly raised. It was supposed that money must needs flow freely into the pockets of either the grower or manufacturer, or both. But the skill had in too many cases to be obtained by the usual costly experience, and with the inevitable result. There was some profit, and much loss; and it has been learned, here as elsewhere, that tobacco is only to be grown successfully with much care, and that it only grows of superior quality on certain limited tracts of land. The reason for this has yet to be discovered, but will be found probably by a minute analysis of soils in comparison with the produce of each. Otherwise the requisite knowledge is here both for growing and manufacturing, and with a wider dissemination of this, and the addition of a little more chemical knowledge, the supply of enough for our own consumption at least may, in the opinion of your correspondents, be soon provided.

FLOWER-FARMING,

In connection with the industries of the south of Europe, flower-farming was naturally suggested to many minds as an employment for children, if not for adults. Even in some parts of the south of England, land devoted to flower-growing for the perfumers gives a larger return than under any crop that can be raised in the same space of time, or with the same outlay of money, and why should it not do so here, where so many more highly-scented varieties of flowers can be raised easily without special care or protection? This question can only be answered by practical experiment, with the guidance of such information as any moderately skilled gardener possesses. With flower-farming may be connected the growth of aromatic plants, for essential oils required by others than perfumers.

TEA.

Since this plant was first grown at the Botanic Gardens here, it has been tried in different parts of the colony, and tea has been recommended as a commercial product by several of your correspondents; but the Chinese say that it will not pay at the present rate of labor. They have no doubt about the plant thriving in many localities; but even when offered land and plants free, and whatever profit they could make of it, as they were by one of your correspondents, they would not give up gold-digging in favor of tea-growing. Baron Von Mueller formerly recommended the use of rollers heated and worked by steam for the preparation of the tea.

HOPS.

Wherever beer is made, hops form a serious item of expenditure, and it is plain that, within a very few years, this may be reserved wholly for the benefit of the colony. Hop gardens have been made in Gippsland and in the Ovens district, and the plant tried successfully in many other parts of the colony. Of the prospects of this branch of industry in North Gippsland a settler near Bairnsdale says—"Hop-growing.—The writer has expended a large sum of money in this direction; soil and climate admirably adapted, but labor scarce and dear at picking time. With cheap labor this industry may be extended almost indefinitely in the valley of the Mitchell. Hop plants, two years old, produced last year 11 ewt. to the acre and upwards within half a mile of Bairnsdale." Did space allow I could add the testimony of many other growers of hops in Gippsland. A gentleman residing near Oxley writes to say that he has eleven acres of hops, which will be in full bearing this year, and look very promising. These have since yielded upwards of half a ton to the acre. The only difficulty experienced in Gippsland is the picking and drying; but proper kilns have been erected this year, and as properly saved colonial hops always fetch the highest prices, they will admit for a time of a somewhat extra cost for picking.

NATIVE GUM.

The collection of this, and of a few other products of our forests has been pointed out as a source of employment for a limited number of people.

Objectors to the introduction of new industries, and the extension of those which promise well otherwise, say that no satisfactory progress can be made while capital is so scarce and labor so dear. Agricultural banks are recommended as a cure for the former evil; but that is not a phase of the subject with which the Commission has to deal. The labor question is no doubt a serious one, commercially speaking, but there is every year a greater available amount of labor amongst the small settlers now becoming so thickly scattered over the country. Even though no immediate pecuniary return should be insured for this, a large proportion of it might be most beneficially expended on some of the above-named industries, calculated either to increase domestic comfort at once, or give pecuniary returns at a future day. In regard to dried fruits, for instance, it is suggested that if children were taught that the produce of a few extra vines, or apricot or apple trees, would afford material for better fare all the year round, they would be likely to take some trouble to have these, and dry the fruit afterwards; or, to rear mulberries, if shown that every mulberry cutting put in and sufficiently protected would, in three or four years, give them leaves worth a shilling annually for feeding silk-worms. Such inducements may suffice to have all the petty industries thoroughly tested, if full information be supplied to the bulk of the small settlers, and the more important ones named will be tried by the commercial test of profit and loss. But for all, the advantages of soil and climate are manifestly very great. On this point

there is no difference of opinion. It is agreed that they may be easily naturalized and extended here. The only question is, will they give a pecuniary return for the cost of fostering them for a time? And the *laissez faire* objectors are not in the proportion of one to ten, as compared with those who write strongly in favor of their encouragement, even if this has to be effected by the outlay of a considerable sum of public money for a few years. The ultimate gain to the State is to arise from the more full and profitable employment of a rural population, now scarcely able to earn a bare subsistence by ordinary farming, more especially where the holdings are limited in extent.

PLANTS FOR DIFFERENT DISTRICTS.

Query 2. *What particular plants would you recommend as eligible in your neighborhood for industrial and commercial purposes, and as deserving of prominent attention?*

In disposing of the answers to this question the colony must be divided, in a general way, according to its climates. On the northern slope of the Dividing Range, and between that and the Murray, the climate is warm and dry; on the southern slope much cooler, with shelter from the direct action of the hot winds. The plains towards the sea again are hot, but not so hot as those further north; and near the sea the air is more tempered with moisture, and the range of the thermometer is not so wide. Gippsland has not only the benefit of the air from the sea, but is almost entirely sheltered from the ill effects of the hot winds from the north and north-west.

PLANTS FOR THE WARMEST PARTS OF THE COLONY.

Taking the warmer parts of the colony first—there are recommended for them the mulberry, olive, almond, fig, orange, ricinus or castor-oil plant, some of the varieties of maranta and other plants for arrowroot, ginger, sorghum, indigo, and the sorts of vines suitable for producing currants and raisins. To show that these plants are not mentioned at random or without some little experience of them, part of the answer to this question, forwarded by a gentleman residing near Swan Hill, may be given. After expressing his opinion that with irrigation, easily to be applied, the rich land of the Lower Murray would grow to perfection nearly every tree and plant not strictly tropical, as well as many from colder climates, this gentleman continues—"I have tried the sorghum saccharatum and find that it grows to the greatest perfection. I am therefore of opinion that the variety known as 'planter's friend' would thrive equally well, and if cultivated for the production of sugar would prove highly remunerative—the cost of carriage to market being small compared with the value of the article. This industry might therefore be most profitably established in this district. * * * * I have also tried *Indigo fera tinctoria*, the common indigo plant of India, as well as *Ricinus communis*, the castor-oil plant, both from seed procured from India, and find that they also thrive well. I am of opinion that they also could be made highly profitable if cultivated in the district. Oranges also grow here to the greatest perfection. I have about one hundred trees planted, mostly now bearing fruit. From one tree, six years planted, I have taken one hundred and eighty oranges of the finest description, but I consider that this fruit would not pay for production on a large scale, the cost of carriage to market being so great." Other extracts might be given in support of the opinion that the plants named could be cultivated advantageously in the warmer parts of the colony; but this will suffice to indicate the practical character of the answers to the invitation for aid in the present inquiry.

PLANTS FOR THE MEDIUM CLIMATE.

The plants or trees known or supposed to be suitable for the portions of Victoria enjoying what may be called a medium climate, form a very long list. These are the mulberry, olive, orange, lemon, almond, fig, raisin vines, prune, peach, apricot, apple, pear, jujube tree, ricinus, sunflower, millet, tobacco, flax, hemp, phormium tenax, bæhmeria nivea, rape for oil, poppy, the willow for osiers, the cork-oak, the hop, sumach, cinchona, walnut, Spanish chestnut, tea, sugar-beet, chicory, caper, liquorice, Turkey and Chinese rhubarb, various species of acacia for bark and tannic acid, madder, the smilax for sarsaparilla, and some others of less importance. The almond is especially mentioned as a tree of easy propagation and quick growth, coming into bearing early, and therefore well calculated for the production of oil. Some of the other trees are named with a view to the drying of fruit either for home use or exportation. Although many persons who tried tobacco for a time have ceased to grow it, others, who either had sufficient skill or took the trouble to learn, have found it as profitable a crop as they can grow. On this point, as well as in relation to two other plants, your correspondent from Oxley says—"I have cultivated tobacco almost exclusively for the last eight years and found it to pay a fair profit. I have also eleven acres of hops, which will be in full bearing this year, and at present look very promising. From what I have observed of the castor-oil plant in America, as compared with plants grown here, I think the making of this oil would be a very profitable industry." The hop finds a place in the above list and is favorably spoken of by a few of the residents under what has been called our medium climate, but it can be only expected to yield with any degree of certainty or profit when completely sheltered from the direct action of the north winds; and the same may be said of a few other plants enumerated, which, although liking a tolerably high degree of average heat, yet wither up before our hottest north winds as they would before a blast from a furnace. Of the fibre plants, flax is recommended for nearly all parts of the colony, as a native and good-looking, though perennial variety, is found wherever the soil is of superior quality. Hemp has been tried in different places and grows readily, as might be expected. The bæhmeria nivea, or Chinese grasscloth plant, is less generally known; but of this a gentleman residing near Berwick, and supplied from the Botanic Gardens, says—"About four or five years ago I obtained a plant of it. I planted it on dry sandy soil; it grew from two to three feet the first season, four or five the next, and between five and six and a half the third season. It has not grown beyond that since. It has grown altogether from twelve to fifteen stems at a time. I think it would have grown much better if I had known the proper time to cut it, and could be easily made to yield two crops in the year. It is now (26th September) nearly three feet high, and cuttings planted last winter are nearly two feet high. I believe this would be a most profitable plant to cultivate but for the difficulty of extracting the fibre economically." Of the cinchona, the same gentleman says—"About four years ago I received a plant of the cinchona. After growing nearly two years it was accidentally broken off close to the ground. It is now about two feet high again, and growing

vigorously. It is sheltered from the north winds only. Last summer the hail, on one occasion, lay around it an inch deep without doing it any injury. Last autumn I planted out several in different places without any protection whatever, but the strong north winds shattered the foliage very much. The stems are now (26th September) all budding out afresh, and they look very healthy and strong. The aspect is open to the north and south-west, which I think injurious on account of exposure to the strong winds. I am of opinion that a hill-side facing the east will be found the best. We have very light frosts here, in fact we had none last winter." Of liquorice, the report is that, after some failures from want of knowledge as to how it should be cultivated, the roots last season were nine feet in length, and of nearly equal thickness from end to end, with side roots measuring three feet in length. This gentleman has also tried the poppy—"In 1865 I sowed seeds of the opium-poppy, intending to dispose of the heads to the druggists; but I found, when the season came round, that there was scarcely any demand for these, and the few druggists I asked seemed very doubtful about taking the opium even if I did collect it. The Melbourne seedsmen refused to purchase the seed, so the plants were neglected; next year a splendid crop came up from the self-sown seed—the plants grew six or seven feet high." These few instances out of many may be taken as a proof that the spirit of inquiry and experiment is alive amongst our country residents; and the following extract shows clearly how a vast amount of useful information may be cheaply obtained concerning new plants generally. After describing his success or failure with some of the plants named in the circular, a settler near Korong concludes his answer to query 2 thus—"The rest have not been tried, but I am willing, with others, to incur the expense of experiments on being supplied with plants and information as to the soil each plant requires."

PLANTS FOR THE COOLER CLIMATE OF VICTORIA.

As enjoying a cooler climate, without the extreme vicissitudes of temperature amongst the mountains, the districts near the sea to the westward, around Portland, Belfast, and Warrnambool, as well as the whole of the lower portions of Gippsland, may be instanced. And for such a climate the plants recommended are the mulberry, olive, lemon, almond, apples for cider, pears for perry, the cork-oak, Spanish chestnut, sugar-beet, opium-poppy, millet, flax, hemp, phormium, tobacco, hop, tea, and the pea-nut, together with certain seeds for oil. Under this range of climate the mulberry and the other trees named thrive admirably wherever the soil is naturally dry or well drained. The few varieties of the olive in the colony appear mostly to require a warm aspect to enable them to ripen their fruit with certainty where the climate is comparatively cool. The cork-oak has been rather widely distributed from the Botanic Gardens; although it grows slowly on dry soil, it has thriven well on rich ground, not altogether without moisture. The Spanish chestnut, too, seems rather hard to suit in regard to position, and requires shelter from the north wind. Over the tracts of country named, the sugar-beet may be grown with the greatest facility, as may the poppy and the fibre plants; but it is a question if tobacco does not require rather more heat to bring it to the highest excellence in regard to quality. Here the hop grows to the greatest perfection. Of it a resident of North Gippsland says—"In reference to hops, which I cultivate, I sustained considerable loss last season from not having the necessary skill in drying and saving, and having no books on the subject to which I could refer. With reference to my experience of their culture, I regard them as an unqualified success, pronounced by persons able to judge as being equal in one year to a crop planted three years in England; and as a proof of their extraordinary growth I may mention that they require poles several feet higher here. The varieties I cultivate are the grape and the golding. This year I have extended my plantation, and purpose extending it as my means permit." The opinions of many cultivators of this plant in Gippsland have been furnished, and all agree in saying that the hop is most easily reared, subject to no diseases as yet, and bears abundantly at an early date. But all the growers have suffered more or less from the same want of knowledge in drying the cones and preparing them for market. As to seeds for oil, there is but one opinion also, namely, that many kinds can be grown with ease as soon as there is a market for them; but this there cannot be until oil-mills are erected.

From the foregoing it is clear that we have in Victoria natural facilities for the growth of a wide variety of plants, ranging from those common in England to the natives of semi-tropical climates. Some of these also yield products of great and extended value. And when we find such a want of knowledge and such a difficulty in obtaining information about the saving of a product like the hop, so common in portions of our own country, it is not surprising that partial or even total failures have occurred with the plants or products of other countries, requiring treatment so different from any with which the rural population of Great Britain is acquainted. In fact the successes are more to be wondered at; and these are sufficiently numerous to justify the most sanguine hopes of many of your correspondents.

THE INTRODUCTION OF NEW PLANTS.

Query 3. *What would be the best means to effect an early and extensive introduction of such useful plants as are not yet generally adopted in Victorian husbandry?*

The suggestions in answer to this question are almost confined to three modes, with, however, some variations on each. These are—the offering of premiums, the furnishing of information, and the supply of seeds or plants from public establishments.

PREMIUMS.

With regard to premiums, it is proposed that they should be offered either directly by the Government or through the medium of agricultural societies, and that they should be for new and useful products, for the best varieties of new plants, or for a certain extent of ground planted with any such as may be deemed desirable. It is said the premiums should be large, and that the agricultural societies should be induced to offer them only for the plants or products specially suited to the locality which each represents. Still larger premiums might be offered in the shape of a bonus to the first, second, or third producer of any given quantity of the article desired. There is nothing novel in these suggestions, the only difference of opinion being as to whether the growing plant or the marketable product should be placed first in order for encouragement.

BOOKS AND OTHER MEANS OF INFORMATION.

Many seem to believe that the dissemination of books and pamphlets would be the quickest means of gaining the desired end. These should, it is pointed out, be eminently practical, affording reliable information as to the nature, habits, and modes of culture of the new plants, as well as on the preparation of their products for market, with estimates of the cost and profits. They should be sold at a low price also, or given away, to ensure a wide circulation. It is also suggested that such books, and others of a more costly character, should be supplied to every mechanics' institute. Another proposal is, that there should be frequent reports from recognized authorities, describing the plants suited to various localities, as well as their products and the prices of these from time to time. Then, besides information for immediate and practical use, it is stated plainly in some of the communications that the youth of the colony must be taught the value of such things, and brought up in habits of industry, before any products other than those the result of ordinary farming can be procured to any extent—in short that, besides teaching for men and women, a new sort of education is required for the young, if we are to enjoy the full advantages of our soil and climate. The introduction of skilled labor is also mentioned, to prove by example what may be done; but this is only a part of the whole question of teaching, and it is not shown that the expense of supporting foreign families all over the country would not be very great.

SUPPLY OF SEEDS AND PLANTS FROM PUBLIC ESTABLISHMENTS.

In explaining how this idea may be carried out, there is room for much variety in detail. In the first place, it is said that the Government may open up communication with all parts of the world, either through ordinary agents or the agricultural departments of other Governments, and thus obtain all the seeds or plants needed, either for money or exchanges, payment in kind. But then comes the question as to how such things should be distributed or utilized. One plan is that everything should be first tested or grown on experimental farms in different parts of the colony, and the plants and seeds afterwards distributed from these, with full instructions for their use and application. On such farms, or in example or test gardens, the novel crops could be seen at all stages of their growth. Others recommend that the seeds and plants should be distributed at once on arrival to residents in different parts of the colony, requiring from each person a report as to his success or failure. Others, again, are in favor of a union of both plans, either wholly or in part, the testing of everything on Government establishments, and after-distribution to private individuals for further trial. Some of your correspondents would have the seeds and plants given away, while others would have them sold for at least sufficient to cover the cost of growth and distribution. Then forest nurseries are pointed out as suitable places for testing most of such things, the after-distribution to be effected through the forest boards or agricultural societies. This idea has received other modifications, but the upshot of the whole is, that the Government should be looked to in the first instance for the introduction and distribution of new plants, if this is to be done within any moderate space of time.

ESTABLISHMENT OF FACTORIES.

Query 4. *Can you afford advice as to the establishment of factories, or the introduction of simple machinery for the utilization of any raw products which could be most speedily and remuneratively brought about either in your district or in other localities of this colony with which you may be acquainted?*

The answers to this question are neither numerous nor highly suggestive. The difficulty of affording practical advice as to the establishment of factories of the kind required in the country districts, is very generally admitted. The want of them is forcibly shown by a resident at Ballarat, in his answer, when he says—"I think it is not to the credit of a colony like Victoria, which can already almost claim a place among nations, so far as her wealth and resources go, and which produces immense quantities of the finest wools in the world, that so little has been done to encourage their conversion into fabrics, by which manufacture easy and constant employment would be provided for thousands of young people and women, who at present find none. The supply of woollen goods, such as broadcloths, tweeds, meltons, waterproof tweeds, flannels and blankets, required by this colony annually, would keep from thirty to forty mills always going, each mill to be equal to that of the Victoria Company at Geelong. The establishment of a beet-sugar factory in each agricultural district would be of great advantage to the farmers, as affording them increased facilities for the proper cleaning and re-invigoration of their land, and for the feeding of stock. * * * I believe that olive oil should soon become an article of export, and that its manufacture should be encouraged." The manufacture of woollen goods does not come, strictly speaking, within the scope of the inquiries of your Commission; but this affords a palpable instance of private enterprise not being sufficient to meet the wants of a new country. Another gentleman, likewise of long experience in the colony, residing near Cranbourne, writes on this subject—"So very much depends on circumstances, it is not possible to tell whether any factory will prove remunerative or not. My experience of factories and new industries in this colony is unfavorable to success. Machinery introduced into this district over ten years ago is mostly all rusting and unused, and its introduction has resulted in loss." Factories for the manufacture of sugar from beet seem to be those most required just now in the agricultural districts; but it is not shown how any special encouragement for their creation can be afforded, otherwise than by offering premiums for certain quantities of sugar when made. Factories on a smaller scale for the drying, bottling, and preserving of fruit, and for the preparation of mustard and starch, are also recommended; but the only suggestion in connection with them is, that the Government should offer premiums for plans and specifications of buildings and machinery suitable for such purposes, and have the best of these published, together with other requisite information. Places are pointed out where water-power can be rendered available for any reasonable number of mills; but these unfortunately are, in most cases, where population is least dense. The only remaining suggestion, at all feasible or to the point, is that Government should have plans of simple labor-saving machinery (driven by cheap motive power, such as wind and water, and the several modes of applying these) printed off and widely distributed, especially through the medium of mechanics' institutes, agricultural societies, and farmers' clubs. In this way it is supposed that mechanical ideas and desires might be fostered.

FORESTS.

Query 5. Can you point out any locality in your district as specially adapted for forest reservation, or for forest nurseries, or for the raising of new forests?

The consideration of another subject has now to be entered on, one also of no trifling importance, for firewood even is becoming scarce in many districts of the colony; and without fuel little work is to be got through in these mechanical times, leaving out of the question the requirements for domestic use. As the natural forests disappear, it becomes a serious question how these are to be replaced. There has been little heed for the future; and even where there is a spontaneous growth of young trees, several years must elapse before this can be of much utility. From most of the goldfields urgent intreaties have been received for the strict reservation of all forest lands within an available distance, as well as for the preservation of young timber. With a view to climatic influences, and the continuance of our present rain-fall, several gentlemen interested in stock and agriculture, would have all timbered ranges reserved from sale or occupation. To afford shelter soon, and timber at some future day, it is recommended that all the three-chain roads be planted for two-thirds of their width, and that trees be planted at each side of the narrow roads. In many districts, spots of more or less extent are pointed out as suitable for future forests; and one proposal is, that all worked-out auriferous land should be reserved for this purpose, as being altogether unfit for agriculture. But although bad land, in the ordinary acceptance of the term, much of that which has been deeply stirred in the search for gold grows vines and fruit trees to perfection, and is therefore suited for settlement. Great stress is laid on the *permanent* reservation of the forest reserves, as it is alleged that very much forest land has been lately taken up by selectors solely for the timber. Where the land is of better quality, the selectors are destroying an immense number of trees by ringing them; and one instance is given of a selector who barked 200 fine stringy-bark trees to cover in a shed, worth, when finished, about fifty shillings. In some of the stringy-bark forests, vast numbers of trees have been killed by ringing, in the vain hope that the grass would grow for the selectors' cattle. The establishment of forest nurseries is recommended for almost every thickly populated district; but there is a difference of opinion as to whether the new forests planted therefrom should consist principally of native or exotic trees. Where trees have to be planted, this may remain an open question, and trees of every sort set out to prove which is best. But it is plain that, where any great extent of land has to be covered with timber, the spontaneous growth of native trees will have to be principally depended on. In all old forests, excepting where the land is rich, seedlings rise in great numbers, and the best, if allowed room, soon grow into vigorous trees. The before-mentioned residents at Bontherambo state that a portion of their property near Wangaratta, which was cultivated twenty years since, is again almost as heavily timbered as the waste land—but, of course, with young trees only. Even in many parts of the colony now open, and far from any forest, seedling trees of different sorts grow up if the land be ploughed and allowed to lie otherwise untilled for a year or two. These facts point plainly to the source whence our forests must be renewed, as the young trees raised in nurseries, and planted out, whether native or exotic, can go but a little way towards meeting the future forest requirements of the colony.

FOREST BOARDS.

Query 6. Are you of opinion that local forest boards should be constituted, subject to some general regulations issued by Government; or can you suggest any other efficient organization by which the forests of this colony could be better watched, enlarged, or restored, and rendered productive to the utmost?

This question resolves itself into two parts, the one relating to forest boards, and the other to the preservation and rendering productive of the present forests. From all parts of the colony, where trees are worth looking after or caring for, the opinion is in favor of local boards of management, with various modifications. One recommendation is, that in addition to the members of local public bodies, so many of whom are likely to be changed each year, a few non-official residents should be appointed, to allow of the business being conducted with more regularity and steadiness. Another is, that there should be an Inspector-General of Forests, with a staff of competent men under him to advise or act with the local boards. A third is, that there should be a Department of Agriculture, Woods, and Forests, presided over by a Minister of Agriculture, and that all the rangers should be properly trained foresters. Different constitutions have been proposed for the central body, but the opinion seems to be very general that there should be something of the sort to provide for the proper training of foresters or forest rangers. On the other hand, it has been stated that the experience of the management of Crown lands by local bodies has been, on the whole, very unsatisfactory. About three millions of acres of lands reserved for commons, parks, and gardens in country districts have been under such local management, and the result of such management has been that the funds available for local improvements from agistment of commons have been exceedingly small, and that, with a few remarkable exceptions, the trustees and committees of management of parks and gardens in country districts have either neglected arboriculture in such reserves or been very unsuccessful in their planting operations, notwithstanding the aid derived from donations of money by the Board of Land and Works, donations of plants from the Director of the Botanic Gardens, and funds obtained in many instances from the letting of portions of such reserves by the local boards in charge thereof. It has therefore been suggested that the Board of Land and Works, being by law the custodian in its corporate capacity of all reserves, and being empowered to frame for the care, protection, and management of such reserves regulations, the violation of which would subject offenders to severe penalties, all State forests should be under the general control of such board, and that local boards should merely be boards of managers to carry out the regulations from time to time made by the Board of Land and Works for the care, protection, and management of the various State forests; also that all the larger State forests should be under the immediate supervision of such board and of its responsible officers.

THE CARE AND MANAGEMENT OF FORESTS.

The matter of fact view of the second part of the question is, that forests will pay well for being taken care of. But the amount of care recommended depends on the exigencies of each district. Where timber is becoming very scarce, it is proposed that the timber be treated strictly as the property of the

boards, and that it be felony to cut a tree until it has been sold by the ranger. According to this plan, the trees for sale should all be marked in a certain way, and disposed of by auction at regular periods. Where timber is rather more abundant, but still scarce, it is proposed that sawyers, splitters, and wood-carters be charged higher fees than at present for licenses, and that no tree be cut until marked for falling by the ranger. The granting of licenses to cut trees indiscriminately, and to use only one length or two of the trunk, is protested against as a piece of needless and wasteful extravagance, except in the very large forests away from the settled districts. The heads of such trees left scattered about to dry are also the cause of forest fires being far more fierce and destructive than they otherwise would be. It is therefore deemed highly necessary that, wherever fire-wood is required, the persons falling each tree should be obliged to cut up and remove the head within a limited time. The present orders to that effect are seldom or never obeyed. Where firewood is becoming scarce, it is proposed that the cutting down of living trees for this purpose should be absolutely forbidden so long as there is any dead timber unused on the ground. The processes of ringing and stripping off sheets of bark are so unprofitably destructive of valuable timber, it is considered that, for the future, both should be entirely forbidden on all Crown lands. Even in some of the large forests, straight free-splitting barrels are becoming scarce, and the sawyers have to go a long way in for logs, because the best trees are those off which the bark is most easily stripped, and so many have been thus spoiled. Some glaring instances are given of the cutting of enormous quantities of saplings for fences, and that where props are urgently needed by the miners. A very few years of growth would convert these saplings into valuable props, whereas they make poor fences. It is therefore considered that this use of young timber should be entirely put a stop to also. It is alleged that in those districts in which timber is becoming scarce, the forests will far more than pay for their maintenance and increase, if treated as they are in most parts of Germany or Switzerland, where each town or village has a forest or part of a forest for the use and benefit of its inhabitants. Further details are entered into by some of your correspondents, but it is of more consequence just now to secure the recognition of principles altogether new here in regard to forest management.

SUPPLY OF NATIVE TIMBER.

Query 7. How long will the supply of native timber probably last in your locality under existing arrangements, bearing in view the likelihood of a continuous increase of the population?

Of course the answer to this question from several districts is, that the supply will last for an indefinite period; but it is quite otherwise in far too many places. Even where the country used to be covered with timber this is now becoming scarce. Commencing near Melbourne, we have depicted a dismal future for the wood-carters of Boroondara, as the estimates vary from only three to five years for the continuance of the supply, and the majority of the inhabitants of the district earn their living by selling firewood in town. Some of these men cart it a long distance from Crown lands, but many have even now to purchase by the load off private land, to sell again with little profit. From Greensborough the report is that all the timber will have been removed in a very short time from Crown land within reach of those who cart it into town, and that then all the firewood will have to be purchased off private land. Continuing the circuit round Melbourne, the supply becomes more scanty until the plains are reached, where there is absolutely none left. Near Geelong, as there was more open country at first, the supply is more completely exhausted. To both places the timber for building purposes has to be brought from a long distance, principally by water. In the neighborhood of Belfast no timber for such purposes is now to be had within carting distance; all has to be imported from Tasmania. Around Cranbourne, in the midst of what was formerly a thickly timbered country, we are told that there is now no timber fit for anything but fuel and the roughest of fencing. Within the last twenty-five years half the original timber has disappeared by removal in clearing for cultivation, by barking, ringing, and the ravages of insects; and it is estimated that in fifty years there will not be a living tree left, except the few that are being planted. From Berwick, much nearer to the ranges, the statement is that the supply will be equal to the demand, if the young trees are allowed to live. Near Bacchus Marsh there is scarcely enough for firewood, except on private property, and the little there is the selectors are rapidly destroying. All over the plains firewood was scarce from the first, and of course the supply does not increase. Even at Camperdown it is said that the good timber within twenty miles will not last for more than about the same number of years. And, taking the whole county of Heytesbury, containing a large portion of the great Cape Otway forest, it is estimated that, if the present scale of destruction by splitting, ringing, barking, and burning is allowed to continue, there will not be a tree left before the lapse of half a century.

TIMBER ON THE GOLDFIELDS.

The foregoing estimates and statements may be taken as affording a fair average view of timber prospects over the country generally; but when we come to the goldfields matters begin to assume a much more serious aspect. Of Castlemaine, the town clerk writes—"The timber in this district is disappearing very rapidly from the want of proper supervision; the saplings are cut down, the trees are not being replaced, the seedlings are destroyed by goats; the wood-cutters and others, now unrestricted, are causing the most reckless destruction. In this borough about 30,000 tons are annually consumed for firewood, besides large quantities used for mining plant and other purposes; therefore, unless some protective measures are enforced, the timber will be exhausted by the present population in a very few years." At Sandhurst the state of affairs is similar. On this point one correspondent says—"An immense quantity of timber is used, winter and summer, for the engines employed in quartz-crushing. It is a fact that the winter before last many stopped crushing for want of firewood. The timber had to be carted so far, with the bush a mere swamp, that the horses could not bring it in." On many of the engine claims fuel has long been a heavy item in the cost of obtaining gold, but now, as alluded to above, work has too frequently to be stopped when the roads are very wet and bad, the extra expenditure on carting then absorbing all the profits. About Daylesford it is said that there is fencing timber enough to last with care for fifteen or twenty years, but that this is becoming scarce in places even now; and that, if enough forest land is permanently reserved, there will be a continuous supply of firewood, but that, if props are allowed to be cut as

they are at present in the State forests, in defiance of the regulations, there will be none left in ten years. From all the districts in which there is deep sinking, you have the same complaints about the props. Not only is the distance from which they have to be carted increasing every year, but the prospect is that, at the present rate of use and destruction, there will soon be absolutely none left. From Creswick the statement is that, if the present wasteful system is followed, the supply of any sort will last but a few years; from Clunes, that all timber, except firewood, has to be carted a distance of at least fifteen miles; and from Newstead and other places around, that all the timber goes to Clunes, and that it will be all used in from five to ten years. Even at Bungaree we are told that all the good trees are cut, and that only firewood is left. Young trees are, however, growing up, and will make props if preserved long enough. From Smythesdale the report is that the useful timber is nearly exhausted now, and that in two years there will be none left outside of the fences round private property and selected allotments. It has been stated that the power given by the Mining Statute to any holder of a miners' right to obtain on Crown lands whatever timber or bark he requires for personal use, without being subjected to the conditions and restrictions imposed on holders of wood licenses, has been greatly abused, and has greatly tended to bring about the present scarcity of timber on some of the goldfields. Such are fair samples of the reports from the different districts; but some could be adduced of a still more unfavorable character. One fact alluded to by some of your correspondents has an important bearing on the future supply of timber, and this is the dying off of some kinds of eucalyptus over large tracts of country. The inferior sorts are those which have perished most generally; but a resident at Mount Battery says—"Twenty years ago this estate, 20,000 acres, was covered with valuable red-gum timber of excellent growth. This has been, I may say, entirely destroyed during the last ten years by a parasitical disease. The leaf is covered with a small insect under a flat shell which destroys the foliage, and in two or three years the tree perishes. There are no young ones springing up in their place, and, without planting, the land will be denuded in a few years." The objectionable insect is plainly a variety of the cocoon or scale, and is more probably a consequence rather than the cause of disease in this case, for it is not present where other varieties of gum die over miles and miles of country. The actual cause of the trees dying over these wide spaces appears to be still a mystery, in many instances.

THE PRESERVATION OF YOUNG TREES.

Query 8. *What means would you recommend for preventing the destruction of young trees on abandoned mining land, or elsewhere?*

The suggestions for the protection of young trees are few in number, but very much to the point. Where the want of timber is becoming most felt, it is recommended that the cutting of seedlings and saplings, or off-shoots, shall be absolutely prohibited except by the forest rangers and their assistants, and that they shall only cut what ought to be removed in their periodical thinnings. As a rule, seedlings grow much too thickly, and are the better for being judiciously thinned once or twice a year; but when carters are allowed to help themselves they take the best, regardless of the future. So with off-shoots—if one or two only are left to each stump, they become in a few years useful for props or firewood, but if too many are left none attain any size. Where timber is less scarce, it is proposed that no seedlings or saplings be cut until they have reached a certain size, and that the cutting take place as much as possible under the inspection or direction of the rangers. The young growth should be protected everywhere from stock by secure fencing, and goats at large should be destroyed. License-holders are not allowed to keep these animals according to the terms of their licenses, but there are many men residing in, or close to the boundaries of the forests, who are not licensed, and who can therefore keep goats with impunity, to run over the forest land and increase as they please. There are besides, in many places, flocks of half-wild goats without owners, and these destroy numbers of young trees. Everywhere close fencing is insisted on for forest reserves, and protection, more or less stringent, for the young timber. This last is given as one of the reasons why general regulations will only be found applicable to certain localities, and why these should be supplemented with special regulations suitable to the requirements of each forest. Bush fires are pointed out as one source of great danger to young trees, and the present regulations are intended to guard partially against these, by requiring sawyers and splitters to cut up and stack the tops of the trees felled by them; but, in the first place, there are not bailiffs or rangers enough to see that these rules are enforced; and even when the heads are cut up, the small branches, leaves, and bark will be left on the ground to dry, forming the sort of fuel especially calculated to spread the flames. These, as the Director of the Botanic Gardens has pointed out, might be advantageously consumed for the yield of oil, tar, or potash. On nearly all the old forest land seedlings grow abundantly; but it is suggested, where this happens not to be the case, that seeds, for sowing broadcast in the most appropriate places, should be obtained from other districts.

REGULATIONS.

Query 9. *What regulations or bye-laws would you recommend to be adopted in your district for the disposal of timber on Crown lands to supply existing wants?*

The urgent necessity for efficiently protecting young trees was before mentioned as one reason why each district should have its own bye-laws, but many more are adduced in answer to this question. In some districts the opinion is that no person whatever should be allowed to cut trees or saplings without a license, the charge for this to vary in amount to farmers, wood-carters, sawyers, or splitters. Others, again, say that every tree should be sold by auction before it is cut; while, according to some, timber as it leaves the forest should be paid for by the load—so much for straight timber and so much for crooked timber or firewood. The revenue thus obtained would be in exact proportion to the amount of timber taken, which it certainly is not under the licensing system. As an instance of the income to be derived from the sale of firewood alone, Castlemaine is mentioned. We are told that, if the carters had to pay sixpence a load for the firewood consumed in the borough, the amount collected from this source alone would be £750 a year, and the inhabitants would derive benefit for the slightly increased cost by the greater abundance at a future day, if the income so derived were to be expended in economizing the present supply, so as to make it last longer. But such an income would not only allow of that, but also of very much increasing the supply for the future.

The revenue from the State forests, if thus raised by the actual sale of timber, where possible, would soon become a very large one. Details are entered into as to the special requirements of different districts, with regard to the preservation of certain kinds of timber now becoming scarce, the care of young trees, the making of plantations, and so on; and it has been very generally suggested that each forest board should have charge of the reserved forests within its own district, with power to raise a revenue therefrom, and expend it as may be deemed most advantageous. Under such a system the Board of Land and Works would only have to issue such general regulations as might be deemed advisable from time to time, reserving, as a matter of course, the right to adopt or reject any special regulations submitted by each board.

THE PLANTING OF TREES ON PRIVATE PROPERTY.

Query 10. *What measure of encouragement would you recommend to promote to the utmost the growth of timber on private land?*

For the promotion of this object the same idea, which has been lately carried out in New Zealand, seems to have suggested itself to some of your correspondents, namely, the granting of land in proportion to the extent successfully planted with exotic or native trees. The several proposals amount to this, that land certificates be offered to every owner of five, ten, twenty, thirty, or more acres of healthy growing trees, planted out three, or four, or five years, as may be deemed fit, the proportion of land to be so offered varying with the fancy of the writor. Some propose acre for acre; others, more liberal or better acquainted with the cost of planting, would give five acres of bush land for every acre planted. Premiums of other sorts are also named, including prizes offered by agricultural societies; but these last would scarcely suffice for inducement to plant, unless the ordinary amounts of such prizes are greatly increased. One suggestion is, that the young trees should be raised at forest nurseries, under the care either of local boards or the Inspector of Forests, and that money premiums should be offered to the successful growers of certain numbers of these for five or seven years. The raising of such trees at public nurseries seems to be a favorite idea—these to be either given away or sold at cost price. It is stated that many owners of land, who cannot afford to pay the prices asked by nurserymen, would plant and take care of trees, if they could obtain them at a low rate. And this view of the case is put in different forms. Some would not only have the trees given away, but they require, in addition, full instructions for planting and tending them, together with particulars as to the future value of the sorts recommended, at different periods of their growth. Others more reasonably ask that information of this kind be first distributed through the country, and that the young trees be in due time distributed, at cost price, to all such as may require them. Others, again, ask for information and a free distribution of the seeds of such trees as it may be desirable to grow, whether native or exotic. It is pointed out that the cost of collecting seeds here is not much, and as these are so highly valued in other countries—France, for instance—that we could obtain cheaply all the seeds we would require to import by establishing a system of exchange. But this would have to be conducted through a Government department, or entirely trustworthy agents. Then, as many farmers, who cannot afford to buy them, would like to have young trees to plant out for shelter, it is suggested that persons farming their own land might have a certain number of trees from the forest nurseries, in proportion to every acre cultivated. One idea is, that owners of land by the side of wide roads should be allowed to fence in a certain width of the land reserved for the road, if they would undertake to plant this. And as to the roads generally, it is suggested by many of your correspondents, that the local managing bodies, whether councils or forest boards, should be compelled to plant trees along them every year, the numbers so planted to be in proportion to their revenue from forests or other sources, the distance of the trees apart to be regulated by some general rules. Common suggestions are, also, that plantations of anything over an acre in extent should be exempt from rates or charges of any kind, and that trees planted by selectors should be liberally estimated, when valuing their improvements. The bulk of the recommendations are, however, to the effect that young trees of useful kinds should be raised in large quantities in forest nurseries, by competent men in the service of the State, or of local boards; these to be afterwards planted out according to the mode experiment may prove most desirable. If owners of land would not buy them, they might be given away; or, as was done in France once with mulberries, even a premium might be offered for successfully growing the sorts most valuable to the country. But the necessity for not sending out the young trees until they have attained to a good size is strongly insisted on. The sending out of young trees of considerable size to distant localities is not only too expensive, but in many respects an impossibility, especially as regards the evergreen sorts. Hence the necessity for local nurseries.

PLANTING OF LAND BESIDE THE RAILWAYS.

Query 11. *Would you recommend the planting of olives, figs, mulberries, cork-oaks, various timber and fruit trees, or the rearing of such other specially useful plants as are neither readily inflammable nor of tall growth along securely fenced railway lines, where the space is sufficiently wide; and how could this be best accomplished?*

The general opinion is in favor of planting the vacant spaces beside the railway lines, but there is nothing like unanimity as to the kind of trees with which these should be planted. A few have recommended that the European system be adopted—that of economizing the land to the utmost, by planting it with low-growing and dwarf fruit trees. This would, in fact, necessitate the letting off, in small portions, of this now unused land; for fruit trees could only be planted to serve private interests. Were these to be planted by the State, or by public bodies, the fruit would be an attraction to children when ripe, and would possibly be the cause of accidents of a serious nature. The loss would be certain, and injury to life or limb not improbable. The growing of fruits suitable for drying is part of a plan suggested for making such strips of land useful in trying experiments with the aid of prison labor. The men might be conveyed by train to any portion of the line, and then employed in digging or trenching the land; this to be afterwards planted with olives, mulberries, raisin vines, figs, almonds, or such trees as would afford products

for the occupation of children. The children might be conveyed to and fro likewise, when tending the trees or gathering the fruit. But the only saving to be thus effected would be in the use of land already fenced; and where land is so plentiful, and the prisons and industrial schools not immediately on the lines of railway, the loss of time would more than counterbalance any saving in the cost of fencing. Others besides fruit trees are recommended, to be planted by prison labor, or whatever men may happen to be available from public establishments; the tending or other light work to be done by the women and children from these. Many portions of these strips of land would be highly suitable for the olive or the mulberry, neither tree bearing fruit attractive to children, and the produce when needed could be taken by rail to places suitable for the erection of mills or the keeping of silk-worms. Various modifications of the system of rendering prison or other State labor available for the planting of such strips of land have been proposed. For instance, as before mentioned, the trees might be planted, tended, and the produce afterwards rendered marketable wholly by men, women, and children from State establishments; or the trees might be planted and tended to a profitable age, and the plantations so established then let to tenants for a period of years; or the land might be merely trenched by prisoners, and then let to tenants, to be furnished also, from State nurseries, with such young trees as it might be desirable to have the ground planted with. Then a mixed system of gardening and railway repairing is suggested. Men competent to undertake the ordinary repairs might be placed in charge of certain short portions of the lines, to be visited frequently, while their extra time might be expended on the land at each side in gardening or planting trees. The cork-oak and bitter almond are pointed out by many as very suitable trees; but there is a direct opposition of opinion amongst your correspondents as to whether the lines should be planted with deciduous or evergreen trees. The former are recommended by some as affording shade in summer, and a free access of light and air in winter; while the falling leaves are objected to by others as likely to increase the danger of fires. There is, however, at certain seasons a considerable fall of leaves from evergreen trees. This danger of fire is one to be carefully guarded against, and a proposed mode of doing so is to cause all the trees to grow with high stems, to allow of cattle or sheep grazing beneath the branches and eating the grass bare. It is even suggested that, whether trees are planted or not, no grass should be allowed to live, the ground being covered with some strong-growing variety of mesembryanthemum, which would remain green throughout the summer. Such and so many are the opinions in regard to planting the vacant land beside the railways; and although the schemes for rendering this available may be only partially feasible, the fact remains that there is, on the whole, a rather large extent of fenced-in land of almost every quality ready for the trial of experiments or the formation of State nurseries.

INDUSTRIAL SCHOOLS AND OTHER STATE ESTABLISHMENTS.

Query 12. How could the labor available at State establishments, schools, hospitals, or any other public institutions be advantageously utilized for the furtherance of such new industries as those below mentioned?

One of your correspondents, a settler near Ballarat, taking a comprehensive view of this question, has wisely written—"I consider the subjects of query 12 of vastly more practical importance than all the rest on the paper, which may be safely left to private enterprise. That question must be considered and determined by the statesman and ratepayer when they can deal with it wholly apart from political bias." That is to say, it will be for the statesman to determine first, what sort of training for neglected children and prisoners will be most beneficial for themselves and the country, or what new industries are adapted to its special requirements; then for the ratepayer to say how much he is inclined to expend on converting useless and detrimental into useful members of society, or on the introduction of new industries, affording no immediate return, but likely at a future day to be the source of profitable employment to many people. State establishments for farming and such ordinary occupations are generally, and strictly speaking, failures from a monetary point of view; but children and prisoners have to be fed and clothed, and if the money returns from their labor are small, they might, with most advantage, be employed on special industries calculated to afford valuable teaching to themselves and others. Therefore it is at State establishments that new industries likely to be of use to the country ought, in the opinion of your correspondents, to be first tried. The State can obtain more complete information about these than private individuals, and the State has the land and the labor of men, women, and children to carry out the experiments at little extra cost. Olive oil and silk are more particularly pointed out as two products requiring the teaching and example of the State to make them popular within any reasonable space of time. On this head gentlemen before quoted say—"We strongly recommend extensive plantations of olives and mulberries in connection with the industrial schools; oil manufactories and magnaneries to be of course in connection with these plantations, otherwise the experiments would be useless." Much ground might be trenched and many olive and mulberry trees planted each year without adding materially to the expense of our gaols. When these come into bearing there are women and children to make use of the products. Thus it is recommended that there should be large reserves of lands round every industrial school or other place intended for the reception of men, women, and children to be maintained by the State, in order that outdoor occupation should be found for these, rather than work at the ordinary indoor trades and occupations, so liable to be overstocked. Besides, it is thought by many that prison or State labor should not be brought into competition with that of private individuals; and new rural industries would have the advantage of not causing any such competition, either in regard to the products or the persons trained in them. Take, for instance, the two articles already mentioned, olive oil and silk. The competition of the State can never reduce the value of these, nor of opium, and other minor products of a like kind, while the example and the opportunity of learning how to conduct these new industries would be most beneficial to the community. Thus, for many reasons, the introduction of new rural industries is commended to the care of the State. By means of several of these, occupation can best be found for many of the children now at the schools half idle, or, at the best, only learning trades at which they have not teaching or practice enough to become proficient. The nature of the work would be mostly of a kind suited to the capacity and favorable to the health of children, and boys and girls old enough to go out to service would easily obtain the best of situations. The new industries would be brought into extended operation first by the most intelligent of our settlers, and the children becoming skilled in these at the industrial schools would be eagerly employed as teachers of others; while as now, only half-taught, they are taken from the schools to be put to the

lowest drudgery. The two products named would only provide employment for a short time in each year, but, with the addition of drying fruits, gathering tea, preparing medicinal herbs, and, as has been suggested, the steeping and scutching of flax, full employment for the twelvemonth could be provided. With a judicious choice of such occupations or branches of industry, these schools might be made in a few years, to a great extent, if not entirely, self-supporting, and it would be not only advantageous to themselves but to the State to keep the lads and girls until they had been fully instructed in the several new industries. As soon as there were mulberry or ailantus trees of sufficient age, by the work of a few weeks in summer in tending silk-worms, each child could earn enough to pay all its expenses for the year. And the same might be said of opium, while this last has the advantage of being gathered within a few months of sewing the seed. It is with a full knowledge of what may be done by children in some of these, to us, novel industries, that they are specially recommended by many of your correspondents for our State establishments. But there is a difficulty, not overlooked either, and that is to find persons competent to teach them. There appears to be no want of skill in the actual work needed, even in the colony, but few skilled workmen are good teachers of children. The real difficulty, it is said, will be to find a person or persons with the faculty of organizing such a system as will render the skilled workmen or workwomen and the children of mutual advantage, each to the other.

RURAL EDUCATION.

Query 13. *What means, beyond the facilities already existing, might be chosen to diffuse industrial and agricultural education through the colony?*

The want of education seems to be widely felt, for not one of the questions has been so generally or fully answered as this. Every possible mode of instruction is indicated as desirable for one or other section of the rural population. Many of your correspondents are in favor of lectures, and, according to their widely diverging ideas, these should vary from lectures of the very highest class, delivered in the halls of the University by a professor of agriculture, to the homely teaching of a peripatetic lecturer at every farmer's fireside throughout the country. And as to schools, the range is equally wide, from an agricultural college on the model of that at Cirencester to the evening school for boys and farm laborers, at which the teaching should be of a special kind and the payments very small. Nor has there been any omission of the means for teaching adults, including agricultural and produce shows of every kind, farmers' clubs, model farms or gardens, and books, tracts, or pamphlets, specially prepared and published for use in the colony. In the answers to this question agriculture seems to have almost entirely occupied the minds of the writers, other industries having been but lightly and rarely touched on.

AGRICULTURAL LECTURES.

Lectures are much in vogue nowadays, and many of your correspondents seem to consider, that in this way information might be imparted most quickly and generally. Aware of the difficulty of finding men qualified for this task, some suggest that lecturers, well acquainted with the wants and practice of the colony, should be sent to other countries, such as France, Germany, Italy, Algeria, or even China and Japan, to pick up fresh ideas and useful plants for the benefit of agriculturalists here. And while learning in these countries they might furnish valuable reports on the agricultural practice or rural industries likely to be suitable for colonial adoption. When a few competent lecturers are either found or trained for the purpose, they might be employed partly in addressing to the members of agricultural societies or farmers' clubs papers carefully prepared for publication, and for the remainder of their time in travelling through the country. But on this point it is best to give the opinions of some of your correspondents in their own words. Thus, the Ballarat gentleman before quoted says, in answer to this question—"By the appointment of a few Government agents or travellers, who should be always on the move through their respective districts. They should be men of ability and energy, with good ideas of agricultural and industrial pursuits: men of good and simple manners, who could associate with all classes of society, draw attention to defects in any system of culture or manufacture, point out errors and remedies, recommend improvements and alterations; and they should report quarterly to some responsible head the various merits and demerits they had noted in their respective districts, the rates of progress and improvement, together with their own suggestions—such reports to be published regularly and widely circulated." An answer from Heathcote is in a similar strain, viz.—"By lectures in the most central places, and expositions of the result of analyses of a few of the soils in each place, and also of the cereals and vegetables grown in such district. If such information and any other considered useful were published in a cheap pamphlet form, I believe it would be of advantage to agriculturists." Then, the answer of a settler near Harrow is:—"Lecturers skilled theoretically and practically in scientific agriculture, as established by the chemical researches of Liebig and others, might be sent through the country, who should examine carefully the natural advantages and capabilities of each district, and embody the results of their investigations in lectures to the agriculturists; pointing out to them in what way the soil of their respective districts might be most profitably cultivated. These lectures might be afterwards printed and circulated amongst those interested." One more from the many answers in favor of lectures will suffice. It is from the president of the Newstead Shire Council, showing how agricultural education might be diffused through the country by "the employment by the Government of a qualified practical and scientific agriculturist, who would be capable of delivering and publishing lectures, these to be circulated amongst the various agricultural societies. They, in their turn, should supply information on questions put, and furnish treatises on matters that may have come under their notice by practical experience. I think, also, analyses of the different soils should be made." It is pointed out that, as there is a very general desire amongst the farmers for information and improvement, lectures would be well attended; but to come in contact with the bulk of that class lecturers would have to travel through every district and be content to address a few at a time. Set lectures, prepared for delivery to a picked audience, and after-publication, would of course be needed, but homely instruction of a less formal character is more generally asked for and would, it is supposed, be likely to effect most good.

AGRICULTURAL SCHOOLS.

As before indicated, a few of your correspondents ask for an agricultural college, in which young men could be thoroughly trained in practice and well grounded in all the requisite sciences; but the majority are more moderate in their demands, asking for schools of different grades. The difficulty of providing for

schools of a high class, specially adapted for imparting agricultural education, is plainly shown by one writer, who says—"The number and means of the farmers are not sufficient to support schools such as would be calculated to improve much upon the knowledge ordinarily acquired by practice." This difficulty is so apparent and so generally recognized, that most of the suggestions are for the addition of agriculture in some shape or form, or of the branches of knowledge specially bearing on it, to the regular course of teaching at the common and ordinary schools throughout the country districts. It is recommended, in the first place, that there should be a good-sized piece of land attached to each school. The before quoted resident near Mansfield is rather more ambitious than most of your correspondents on this subject, for he says, in answer to query 13—"By the establishment of agricultural schools in agricultural districts, mining schools in mining districts, and technological schools in manufacturing districts—a small model farm at our common school at Mansfield, the boys attending which are all intended to assist their parents on their farms, and they can be taught to be good farmers. A well-chosen and appropriate piece of land is the first requisite, then an intelligent instructor, who, for four hours a day, would teach the boys an improved system of farming practically, by working them in the various parts of the farm and garden. The girls might also, at the same place, be instructed in the parts of farm industry for which they are adapted, and which would give them habits and tastes that would be of the greatest benefit and happiness to them in after-life." In support of this view as to the best mode of extending agricultural education, the mayor of Sale adduces the following instance:—"Increase the facilities for obtaining such knowledge by affiliating classes for these studies. At Sale, a class for technological education has been very successfully carried on in connection with the common school for some time past." Following up this view of the question, we have the opinion of the mayor of Koroit, in the Warrumbool district, who writes—"I think industrial schools might be established with advantage. This might be gradually grafted on our common school system; say by attaching a few acres of land to one school in each district, where industrial experiments might be carried out." Still another gentleman, the mayor of Portland, is of the same opinion in regard to the direction teaching at the common schools should take, for he says—"By giving the teachers at the common schools an agricultural training, and granting to each country school sufficient land—say six or seven acres for experimental farming purposes—education of this kind would be much promoted." Again, the answer of a settler at the Wimmera to this question is—"By teaching the outlines of agriculture in all the schools in the colony, each large school to have a museum of dried specimens of agricultural products, bulbs, and all useful herbs, their uses to be explained to the scholars." A resident of Cranbourne writes—"In country schools there should be at least half an hour a day devoted to agricultural teaching, which would prove both recreative and instructive. Such instruction could be acquired from printed directions, and would prove highly attractive." An inhabitant of Geelong expresses his opinion that "the upper classes of our common schools should be taught the rudiments of chemistry and physiology." A resident at Camperdown says—"I think public education should be made compulsory, and technological education should be imparted in the common schools." I could add many more answers of this kind, together with suggestions for giving the children a special interest in the teaching they would receive, such as allotting to each of the older ones a portion of ground to crop as he pleased, with annual premiums for the most productive piece or most valuable crop; allotting to each a garden, with annual premiums, and so on. But a few of your correspondents take a wider view of the question. For instance, a gentleman at Bungareo says—"Have a Minister of Agriculture; also, let one half-day in every week be set apart in all common schools throughout the colony for the purpose of teaching this particular branch. Make it a part of the programme of a teacher's qualifications." Very similar is the opinion of a settler near Warrumbool—"I think that, so far as agriculture is concerned, the interest is of sufficient importance for the appointment of a Minister of Agriculture, and that local societies should be established in the various districts. I think, moreover, that, in the agricultural districts especially, children should be given some practical knowledge of farming and gardening at schools, and the taste once acquired in youth would never fail to exhibit its good effects in after-life." The advantages to be gained from the establishment of well-conducted night-schools is clearly pointed out by a resident at Creswick—"If night-schools were established in the country districts, they might be so conducted as to diffuse a large amount of information on agricultural subjects. Circulating libraries might be connected with such schools, the books being chosen specially in reference to agriculture and kindred subjects." The quotations on this branch of the subject may conclude with a recommendation from the town clerk and surveyor at Clunlos, who says—"I would suggest the preparation of a few cards for hanging in the various country common schools, which would contain a few of the leading principles to be observed in the successful practice of farming." This idea may be well extended, so as to include illustrated tables like those lately obtained from the Government printing office at Sydney on the silkworm. In this last, the insect is admirably depicted in every stage of its growth and every change, and the illustrations are accompanied by letter-press directions for feeding and general management, translated from the Italian. Thus a vast amount of useful information might be conveyed to the children at these schools, more particularly if the teachers would give a lecture occasionally in familiar terms on the subjects illustrated. But the representations of insects, animals, produce, or machinery, should be correct and artistic, for early impressions last long, and care should be taken to make these an aid rather than a bar to improvement. The above quotations are but a few out of the many answers and suggestions received on this branch of the subject of education; still, they furnish material for a very complete system.

TEACHING FOR ADULTS.

Lectures are of course adapted for the teaching of both old and young, and schools are for the young alone; but I now come to the means proposed for the teaching of adults. And the farmer especially has need to be constantly learning. As long as scientific investigation lasts, so long will new truths be discovered, and not only have these to be learned, but also the many fresh combinations of the old truths. Then mechanical improvements never cease, and, with the competition of the present day, the farmer has as much need of cheap power as the manufacturer. Thus the farmer must be a reading man now, and the want most strongly insisted on is that of suitable books, or tracts or pamphlets, prepared for the special requirements of the colony. It has been already seen that one of the chief advantages expected from

competent lecturers is the publication of their lectures for general dissemination throughout the country. I could quote many answers in support of this view, but a few will suffice. Thus a gentleman of Woodburn says—"I am of opinion that the State, in order to diffuse industrial and agricultural knowledge, should collect and print at the expense of the State all information they can bearing on the modes of cultivating different useful plants, thus forwarding all information they can procure to the various centres of every kind of industry." Again, a resident of Baechnus Marsh is of opinion "that there should be an Agricultural and Industrial Department to collect information, and, when necessary, diffuse it through the press and by means of pamphlets, also to collect and distribute seeds, and to collect information from the growers thereof. A good agricultural chemist, to analyse soils, roots, and plants, to give lectures, &c., should also be under the control of the department." Then a stockowner of the Wimmera says—"A professor of agriculture might be appointed in the University. Lectures given in various places throughout the colony, and published in newspapers and pamphlets, would assist this object." There is also the following answer from Nunawading, viz.:—"The issuing of pamphlets on all matters concerning the fostering of new industries would be an inducement to the farmers and gardeners to establish agricultural societies in the various country districts." The Superintendent of the Botanic Gardens, Castlemaine, believes that the spread of this special knowledge can be best promoted "by offering premiums for the best essays on the culture and manufacture of certain articles not yet established in the colony, and by maintaining in an efficient manner the botanic and horticultural gardens, where now plants and fruits should be tried and experimented on, and by taking respectable youths as apprentices into these establishments." This last is a good suggestion, although bearing little on the subject-matter immediately under notice—the providing of instructive publications, to be widely read. One correspondent from Daylesford recommends—"That the Government should annually give a substantial reward to either one of the leading papers of the colony which should in the twelve months publish the best series of essays on agriculture and new industries." However the State is called upon to assist in promoting rural industries, old or new—whether by the formation of a department or otherwise—the collection and publication of special information is one of the duties invariably insisted on.

LIBRARIES.

I have already noticed the suggestion that lending libraries should be established in connection with evening schools, and it is recommended besides, that assistance should be given to the formation of good libraries of an agricultural character in connection with farmers' clubs and rural societies of every kind. Reading-rooms are also a country want; but an agricultural population is so much scattered that, except in a few districts, each room would have but few supporters.

FARMERS' CLUBS.

Farmers' clubs are being formed slowly, owing to this difficulty in getting persons to meet for their mutual benefit. But the good they might do is widely acknowledged, and various inducements are suggested. One gentleman says that the spread of information would be promoted by "the organization of farmers' and gardeners' mutual improvement societies and the establishment of experimental farms and gardens." By this gentleman it is supposed that the experimental farms and gardens would form a nucleus for the improvement societies. And the following is the recommendation of a resident near Ballarat:—"Farmers' clubs, which are recently being established throughout the colony, should be recognized by the Government by sending a thoroughly practical analytic chemist to deliver lectures and to analyse the different soils." According to another gentleman practically engaged in farming, the best teaching for farmers would be—"The encouragement of farmers' societies and clubs in every district, as the means most likely to benefit the husbandman. No one system of farming can be profitably followed in Victoria. I have frequently observed the best cultivated fields yield the worst crops; I therefore believe that showing the practical results of success, and a description of failures by farmers, one to another, is the agricultural education best adapted to the colony." The word education is of course here used in a limited sense, but very many believe, with the writer of the foregoing that practical farmers learn more in discussions amongst themselves than in any other way. The answer of another practical farmer to the question is—"Encourage pastoral and agricultural societies by liberally subsidizing only those which are liberally supported by the communities in which they exist. Collect and make public the latest information on such subjects. Encourage the establishment of farmers' clubs in country districts."

AGRICULTURAL SOCIETIES.

The agricultural societies are frequently mentioned as vehicles for instruction, and one correspondent believes that the endeavor to make our national society an imitation of the Royal Agricultural Society of England would be worth all it would cost. But this would be a difficult task, for, in the first place, there are not many men of means and leisure here to undertake the management of such a society with spirit, and, in the next place, some of the country societies are too firmly established to tolerate any interference with them in their own districts. However, the Royal Society is only useful as a teacher by getting up the best shows possible in the area within which its functions lie, and the same thing may be done here by our well-managed country societies. To enable them to do this, it is recommended that money be placed at their disposal, to be offered in large prizes occasionally for such animals, or produce, or machinery, as their districts excel in. This principle was acted on by the late Board of Agriculture, in granting to one society, each year, a large sum of money in prizes for a national show; and often, of late, with a considerable degree of success. Certain it is, that, as pointed out, if agricultural shows are to be looked on in their true light, and to be made valuable for instructing the practical farmers, every means should be adopted to have them as good as they can be, and to prevent anything inferior from being decorated with a prize ticket, owing to a want of competition. When public money is asked for, it is said that the public have a right to demand that it be devoted to sound teaching, and that this should be the main object of every agricultural society is allowed by including all suggestions for their improvement in the answers to question 13.

EXPERIMENTAL FARMS AND GARDENS.

Experimental farms and gardens have been mentioned as a means of teaching, and highly valuable information can be gained at them if managed with judgment. One suggestion is that agricultural instruction could be best promoted "by establishing model farms in the agricultural districts, from which the farmers could get or buy plants or seeds." But it has been pointed out by several farmers who have answered the questions, as, for instance, the resident near Cranbourne before quoted, that there can be no such thing as model farming here, as no one system, not even one clearly defined mode of growing a single crop, can be laid down as the best for all parts of the colony, or for the variable seasons here. Thus there can be no model farm for imitation; but every public farm should be for experiment, and every public garden chiefly for testing and growing plants, trees, or fruits, new or uncommon. Doubtless the practice at these institutions should be worthy of imitation in regard to deep tillage, the economic use of the best implements and machinery, and so on; but the great object, as pointed out by your most intelligent correspondents, should be to fully prove at these farms and gardens every new plant or tree supposed to be a desirable addition to our present stock, to increase and distribute through the country all which prove suitable, and to report fully on all tried, whether suitable or unsuitable. Every product required for novel industries might thus be raised, as well as better varieties of our ordinary farm or garden crops. The quarterly or half-yearly reports would direct attention to these, and give the exact cost of everything raised, with the mode of treatment. Enquiry would thus be stimulated, and the new crops could be seen at every stage. It is thus public farms and gardens would most efficiently perform the function of teaching, and if every country school were to be supplied with samples of the plants proved at the central establishments to be useful, the teaching might be made very general. Teaching by direct example can be effected by establishing any of the well-proved industries of other countries at the industrial schools, as, for instance, silk-producing, fruit-drying, or olive-oil-pressing; but with regard to these nothing new has to be learned—they have only to be naturalized. With farming, in the extended sense of the word, it is very different. Such are, in a condensed form, the opinions of your correspondents practically engaged in these pursuits.

ESTABLISHING OF NEW INDUSTRIES.

Query 14. *Can you offer any suggestions for the establishing of new industries in this colony, through special immigration or otherwise?*

The answers to this question are few in number. One correspondent says—"I believe there are already men in this colony qualified to superintend almost any industry; and I would prefer a man with a few years' colonial, combined with old country experience, to a more active newly arrived immigrant, without experience of the sudden and extreme changes of the climate." Similarly another writes—"I believe there are competent men enough in this country for all branches of industry without special immigration, and with a little fostering of the State new industries will spring up and flourish." A stockowner of the Wimmera protests rather warmly against the increase of the population for any such purpose as follows—"Do not mention immigration; there are more people here now than can make a living. Last month I accommodated and fed on an average about seventy men per night free. Those who chose to pay one shilling to the hospital got their victuals cooked. Out of 700 men, who came in a week or two, only seventy paid the shilling." On the other hand, a settler near Seymour says—"A few olive-oil makers and some families from Cannes, and other places on the Mediterranean coast of France, where flower-farming and scent-making are largely carried on, would, I believe, result favorably; also silk growers and winders." Another gentleman gives it as his opinion that "a few skilled laborers in each industry would doubtless be of great service in teaching the proper system of management;" and it is pointed out that men skilled in the growing of hops and the preparation of flax and hemp are required; but we are told by all who acknowledge the want, except one or two, that such skilled labor will prove to be in the country as soon as the demand for it arises. Then the difficulty of inducing such people to come hither is not overlooked. They are, for the most part, certain of constant employment in their own countries, if deserving of this. A want of capital is referred to as likely to militate seriously against the establishment of new industries. On another view of the question, a correspondent before quoted says—"I make one suggestion: when it is considered desirable to establish any new industry, offer through pastoral and agricultural societies premiums for exhibits of certain quantities of its produce in the localities suitable for carrying on such industry." This inducement has been recommended in the answers to some of the questions previously disposed of, and the principle has not been placed in any fresh aspect in connection with this branch of the subject.

THE REARING AND EDUCATION OF ORPHAN BOYS AND GIRLS.

Query 15. *What are your views as to the best method of apprenticing, or otherwise bringing up to advantage, for industrial purposes, the destitute or neglected orphan boys or girls who are maintained at the expense of the State?*

In regard to this question opinions are divided as to the system of apprenticing. I may commence with the arguments in favor of rearing neglected and destitute children at Government establishments. First on this side comes the town clerk of Castlemaine, who says—"Do not apprentice them to private persons. Those who apply for friendless children are frequently influenced by the knowledge that the child is without a protector, and too frequently they are morally and physically neglected, and prove bad members of society. Presuming that it is the object of the Government to make the boys and girls useful and industrious men and women, with an education in some labor, by which they may obtain an honest livelihood, in lieu of being future criminals, they might be readily instructed in the several branches of labor required in manufacturing wool into various fabrics of commercial value, a great portion of the work requiring but little skill. The establishment of a factory for blankets, flannels,

linsey woolsey, serge, or other material of a coarse kind, could be effected at a moderate outlay, and much work accomplished by children ranging from ten to sixteen years of age, also by adults who are maintained by the State. * * * Educated agriculturalists are required. There are large areas of Crown lands in this colony that might be turned to a profit, if youths were employed in bringing it under cultivation, either for sale or for the supply of the different Government institutions with the produce. Under a well-informed superintendent the colony would thus obtain some well-trained farmers, who, in after life, would disseminate the effect of their training through every part of the colony. This also applies to enclosing and cultivating orchards and vineyards." Another correspondent who answers at length is a gentleman of Saudhurst—"I am so impressed with the fearful responsibility the State has undertaken with regard to the neglected children connected with the industrial schools: I am so fully alive to the advantages that would be derived from setting apart large reserves, entirely removed from the centres of population, for the purpose of instructing them in planting, rearing, and afterwards manufacturing the products, that I trust the Commission will excuse the length of my opinion. Each reserve should be large enough for the production of nearly everything that is requisite for the support of its community, and should include a farm with the various manufactures I have elsewhere alluded to, viz., woollen goods, tobacco, basket-making, drying fruit, oils of various kinds, sugar-beet, tailoring, shoemaking, furniture, &c., &c. I think Government establishments for the above object might be made self-supporting. Private individuals are chary of taking children whose parentage is doubtful. If the State would give the children an elementary instruction in the trades mentioned, they would, when they leave Government control, have the means of earning their own living." In one return, without a name attached, sent in by the Smythesdale Shire Council, it is stated that "there is an institution at Hamburg called the 'Rauhe Haus,' where a great number of orphan children have been brought up, and have been made very useful members of society. I believe no institution of the sort has effected greater good than the above-named. The Government might obtain from the management of the above institution some valuable information." Many express their belief strongly that, with labor so valuable as it ought to be here, and land without cost, such industrial establishments ought in a few years nearly, if not quite, to pay their expenses. But the necessity for a careful classification of the children is strongly insisted on, so that time may not be wasted in endeavoring to force on them occupations for which they may be mentally or bodily unfit. And a resident of Belfast points out a fact not to be overlooked, when he says—"Very strict rules should be kept at all these institutions. The native boys seem to be, whether from climate, from robust habit, or from having more flesh diet, very precocious, obstreperous, and headstrong." Whether to be taught and employed at Government establishments or apprenticed out, it is a matter of great consequence that the natural inclinations of the children should be studied. Your Wangaratta correspondents say—"Orphan boys and girls maintained at the expense of the State should be taught useful trades, and their labor, as far as possible, utilized in testing the remunerative capabilities of novel industries." A gentleman of Nunawading gives it as his opinion that "a large number might be employed in flower-farming, conducted on the same principle as the flower farms at Mitchem, in Surrey. Poppy and other medical herbs could be grown and prepared in the colony." Another gentleman from Nunawading suggests a somewhat different occupation for the boys—"I consider that the labor of orphan boys may be largely utilized by employing them in the local forest nurseries under a sub-inspector; in fact, in a great many ways their labor might be used, in forest culture particularly." The defects of the present system is clearly pointed out by a correspondent from Geelong, as follows:—"Many objections are raised to taking children, male or female, from our public institutions, because of their want of training to perform the most ordinary work. Every child over ten years of age should be trained for some special object in the future, especially boys; and no girl should be unable to perform any ordinary household work on leaving the institution, and proof of the same should be given by the matron or other person having charge." The before quoted resident near Mansfield adds to the question the words "also the convicts in our prisons," and says that he would have them and the orphan boys and girls brought up to advantage "by teaching them all to get their living by industry. This can be taught them in the industrial schools and gaols by attaching to these institutions manufactories of all kinds. Mako Pentridge a great manufactory; and when your convicts come out, after seven or fourteen years' labor, the habit of industry will be acquired, which in most cases will not leave them. With reference to our industrial schools, the earlier the children are brought in contact with and taught the use of machinery of all kinds, the more likely are they to grow up intelligent and useful mechanics. They will acquire thereby a taste for mechanics, and the ingenuity for saving labor, so remarkable in our American cousins, will be developed. I would recommend, therefore, that large and powerful steam engines be erected at all the Government industrial schools, and machinery attached for manufacturing woollen goods, nails, and all other articles for which the services of boys are used in the factories of Birmingham, Sheffield, Wolverhampton, &c. Let the day time of the boys at these establishments be divided into three parts—four hours labor, four hours education, and four hours for recreation and refreshment. I do not approve of the system of apprenticeship, except for seafaring life, and we have here an excellent opportunity of forming the best seamen. We are in the immediate vicinity of the best whaling ground in the world, and every encouragement should be given by the Government to promote this important industry, which would also offer a good school for training our neglected youth to a seafaring life. Excepting, therefore, the apprenticeship to this, I should prefer to work the orphan boys and girls in Government factories, and would recommend that a portion of their earnings be saved for their own use and benefit, and expended, on the completion of their apprenticeship, in the purchase of tools, &c., necessary for their trade, and for providing for them during the first few months after they leave the factory. The girls could be taught also the way to earn an honest livelihood, and their earnings given to them on their day of marriage, or after they had proved that they were capable of supporting themselves by the art or trade they had been taught. I am sorry that I have not time to enter more fully on these important matters, but trust that the Commission will believe that I have no other object in view than that of advancing their very laudable intentions." With one more quotation I may close the arguments in favor of Government establishments, and that is from a return sent in by the Smythesdale Shire Council—"With respect to destitute or neglected orphan boys or girls, who are maintained at the expense of the State, I would suggest that they all be taught different trades at the institutions, and that they be supplied with raw material, so that all clothing, boots and shoes, furniture, &c., used by the Government be made at these institutions. By so doing, in a few years they would be a saving to the State instead of an expense. I would have only one trade in connection with each institution, as only one competent tradesman would be then required at each, and this would not entail any great expense."

THE APPRENTICING OF ORPHAN CHILDREN.

The apprenticing system is recommended apparently from the ratepayers' point of view, to save expense, and there is less variety in the suggestions in favor of it—in short, many of the answers are only remarkable for their brevity and simplicity. Thus, a colonist of many years' standing at the Wimmera says—"Bind them as apprentices after they have received a certain amount of education at the asylum." And a gentleman of Creswick—"The boys might be apprenticed after the manner adopted by the parish authorities at home, to farmers or tradesmen. Five years would be a proper term here. The girls might be dealt with in the same way, care being taken in each case that they should be properly taught the duties they are supposed to learn." Again, from Delatite comes the opinion—"Assign them to any responsible persons willing to engage them for a term of years, subject to the supervision of the inspector of police for the district, a certain portion of their wages to be paid into a Government Savings Bank to accumulate for the benefit of each boy or girl till a certain age." It is suggested by another of your correspondents that the officer acting as inspector should visit every child from time to time, and have power to cancel the indentures if he found his or her education neglected. Another correspondent would foster a feeling of self-respect in the children. His recommendation is—"Bind them out to persons of good character, from whom it may be expected that they would learn habits of industry and independence. To my mind the question of wages should be secondary—name an amount that would cover their necessary expenses, and I would impress upon their minds that they paid by the labor of their hands for the necessities so supplied." A resident in the Bet-bet would have the children all brought up to a country life—"Let them be placed under apprenticeship or agreement with respectable persons engaged in various branches of rural industry. The town industries are already glutted with labor—the rural farming for it. Food and clothing for the first two years would be ample return; after that, a small sum per week, increased annually to the age of twenty-one for boys, and eighteen for girls. They would thus be accustomed to the plainness, simplicity, and industry of rural life." Your Western Port correspondent is in favor of a somewhat mixed system, for he recommends bringing up "the street Arabs in blanket factories, to give a local market for long wool. The more innocent and robust children, when fit to go out, to be drafted into the country districts to be apprenticed or bound to farmers for a term of years. All ratepayers over £—— per annum to be bound to take one or more, or pay an extra tax; local guardians to be appointed to see children properly placed and cared for." A writer from Ballarat goes somewhat more at length into the subject, and he would "allow all respectable tradesmen and tradeswomen, agriculturists, or others, to select orphans or deserted children as apprentices or servants, on giving bonds for their just and proper treatment, education and maintenance, and remuneration if required. No young person to be sent to any master or mistress, if reasonable objection be shown. The desires of the children as to what they would prefer to learn to be consulted as far as practicable. Complaints on either side to be most impartially determined, and offences rigorously punished. The terms of remuneration, of whatever degree, might be arranged as I have before suggested in answering question 12, and the relative capacities and inclinations of the youths should be carefully studied. We should not send a naturally dull sluggard to an occupation requiring great activity and intelligence, nor a keen, sharp, quick-witted boy to be a ploughman. In conclusion, I would take the liberty of suggesting, that the curators of the different botanic gardens in the colony might be entrusted with the control and care of some youths in order to train them as future useful men, and at the same time make them earn their keep; that, by this means, many interesting experiments might be economically carried out, and success in the cultivation of plants for food, fibres, drugs, dyes, gums, oils, &c., be found." A resident at Bacchus Marsh points out a very serious difficulty, when he says—"I could not recommend apprenticing boys to the general farmers, as so few of these farm in a proper manner; but they might be apprenticed to vigneron, gardeners, and others engaged in special industries and trades. As before stated, several industries and different trades might be carried on and taught the boys and girls at the various establishments, employing instructors when necessary." I may conclude on this branch of the subject with a couple of extracts in favor of the family system. Thus, the mayor of Portland says—"Break up these State establishments and adopt the family system as practised in England, but more particularly in Scotland, at the present time. This is held to be infinitely superior to the existing system of massing children in State establishments." And the views of a resident at Kingower are—"It appears bad policy to mix the destitute with the criminal children; and it is very improbable that, by crowding them together in large numbers, they will ever be duly trained in industrious and good moral habits. They are thus placed in an unnatural state, and the more they are removed from the natural state, the more unfavorable it must be for their moral and industrial training. There is no doubt a difficulty in carrying out such a scheme, but as to destitute and orphan children, the more nearly they can be placed in a state similar to that in which they would have been had their parents been living, the better it would be for their education and training, the persons with whom they might be placed being of good reputation for moral and industrious habits, and likely to treat them as their own children."

In conclusion, I may be allowed to point out how completely the chief objects of inquiry, foreign industries and forests, have merged into the one all-absorbing topic of instruction. "Teach us and train the children properly" has been the burden of the cry from all parts of the colony. Your correspondents own their belief that they and their neighbors might be far more profitably employed could they only take full advantage of our soil and climate, instead of ignorantly contending with nature, or were they more fully instructed in the best modes of carrying on their ordinary occupations. And the folly of not training children in the knowledge of such special agents as they will have to invoke the aid of in earning their bread is now so generally allowed, that it need not be insisted on here. Novel industries cannot be learned without teaching and example. A knowledge of the value of timber even has to be gained at the heavy cost of experience; but where this has been so paid for the lesson has been fully learned, and forestry is now deemed an art or business worth serving an apprenticeship to. Ignorance is deeply felt to be the prevailing malady; hence the earnest intreaty for the one sole remedy—information; more information and teaching for both old and young.